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COMMODORE FORMAT

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ISSUE 52 ● £2.95 ● JANUARY 1995

Revealed! The PC's Commodore Emulator!

State-of-the-art disk drives!

GEOS

The new face of the C64?

When you buy this magazine from the newsagent's you shouldn't be able to read this. If you can, then someone's swiped the covertape. Ask your newsagent for a replacement.

Tape to disk SMART!
Turn to p.5

PLUS
Dropzone – the complete player's guide!

Game Diary – the making of 10th Dan!

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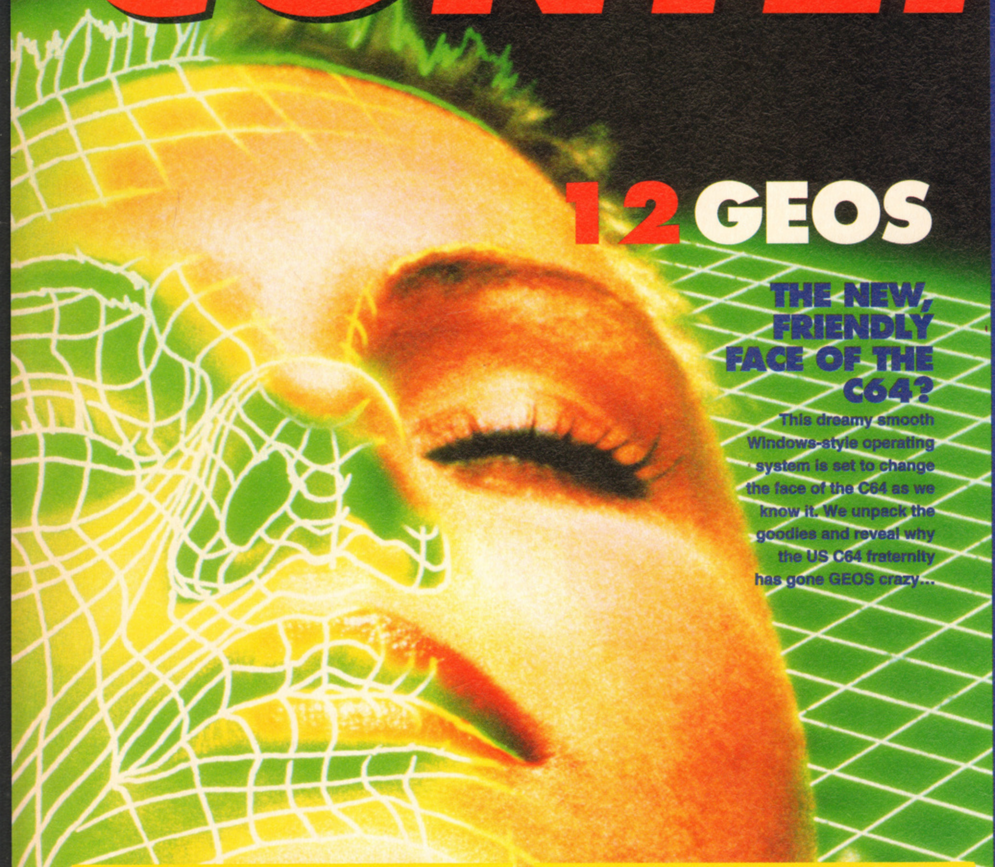
COMMODORE FORMAT

CONTENTS

ISSUE 52 ● JANUARY 1995



12 GEOS

THE NEW, FRIENDLY FACE OF THE C64?

This dreamy smooth Windows-style operating system is set to change the face of the C64 as we know it. We unpack the goodies and reveal why the US C64 fraternity has gone GEOS crazy...

17 HARDWARE FEATURE: DISK DRIVES

Russ Michaels unpacks his Stateside kit, and expounds on the merits of Creative Micro Design's impressive FD2000 and FD4000 floppy drives.

18 EXTENSIVE PUBLIC DOMAIN COVERAGE

This month we've devoted a massive three pages to the megademo *Camel Park* and the witty (or is that sick?) *Unpleasant Ways to Die.*

5 ON THE POWERPACK...

Mega Force.

MEGA FORCE

What can we tell you? You thought you'd just nodded off for a couple of minutes, but in actual fact, you've whizzed hundreds of years into the future where all conflicts are resolved in the virtual world of Mega Force. What's more, it turns out that you're makind's last hope against a tyrannical champion. Better get to it then...

A sample of the pics available.

EXCLUSIVE PD EXTRAVAGANZA

This exclusive selection of PD demos contains some rare treats. With 48K of top-quality graphics, two excellent music tracks and a pre-calculated vector cube animation, there's something here for everyone. What's more, it won't be in any PD libraries until some time next year!

SPECIAL FEATURES

9 GAME DIARY – THE MAKING OF 10TH DAN

In part eight of our on-going series Jon Wells describes the hassles of crunchers and depackers, his reasons for opting for a multi-load format, and what happened to his overheated keyboard...

12 GEOS – THE NEW, FRIENDLY FACE OF THE C64?

We take an in-depth look at this revolutionary new Windows-style operating system, and explore the features found in its word processor, *Geowrite.*

17 WELL 'ARD DISK DRIVES

Fancy a disk drive capable of storing 3.2Mb of data? Thought so. Well, come with us as we check out the seriously tempting specs of the FD series.

REVIEWS

16 REVIEW: THE COMMODORE EMULATOR

These flashy PCs are all very well for business use, but there are times when the eminently accessable C64 would be more use. Well, now you can have both with the *Commodore Emulator...*

18 PD FORMAT

This month Andy Roberts turns his critical eye towards the *Camel Park* megademo, before sniggering his way through *Unpleasant Ways to Die...*

GAMES

6 GAMEBUSTERS

This month we give *Dropzone* the full player's guide treatment. And, of course, there are all the usual tips, codes and hints for gaming desperadoes.

SERIOUS STUFF

21 TECHIE TIPS

Jason Finch dons his favourite matron's uniform and prepares for yet another demanding tour of the 64's seriously disturbed ward.

REGULARS

3 LETTERS

The Mightiest Brain in the universe is back – and this time he wants revenge. Oh, okay, have it your own way – it's the letters page, all right?

10 BACK ISSUES

Dip in and grab a bargain!

15 READER ADS

Buy, buy, buy! Sell, sell, sell! Swap, swap, swap! Eh?

TURN TO PAGE 5 FOR THE FULL COVERTAPE BRIEFING... ➤

THE MIGHTY BRAIN

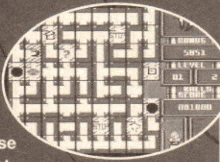
After his extensive (one-month) tour of the inner-cranium and cerebral cortex, The Mighty Brain is back to answer yet more of your C64 niggles, and a darned fine job he does of it too...

Tilt experience

Yo TMB,
I have just seen my first *Commodore Format* in ages. Thanks for still being around. Keep up the good covertapes. Things are on the up!

I loved *Tilt*. It's one of those cheap and cheerful games that covertapes *should* carry.

Got to go. See, I'm on work experience, and my boss could show up any minute now.
Yours on a council printer,
N Tracey


Someone liked it!

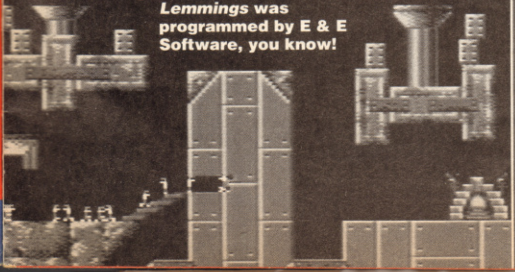
I'm not surprised you didn't provide your address. Clearly you're trying to dodge the hate mail from the thousands of readers who hated *Tilt,* and whom have threatened all kinds of unpleasant behaviour if we ever put anything like it on the covertape again. Still, it takes all sorts... **TMB**

What a lemming!

Dear TMB,
I recently bought issue 50, because I saw that The All-Time Top 50 C64 Games would be printed in that issue. Interested (as always), I noticed that *Lemmings* was ranked runner-up by your readers. So, first of all, I'd like to thank, on behalf of the whole team (Thomas Mittelmeyer, Jeroen Tel, Leon van Rooy and myself), all the readers who voted for us, and second, Psygnosis for making it possible.

Also, congratulations must go out to John and Steve (the Apex Bros) for their wonderful C64 products, as well as for beating *Lemmings* to the top spot with their brilliant *Mayhem In Monsterland.*

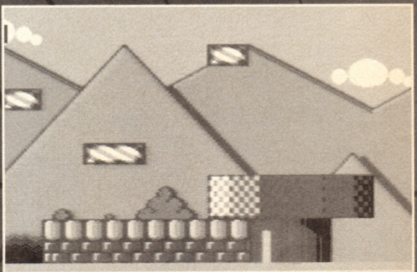
A small 'not' needs to be added to this celebratory letter, though, because in the Top 50, as well as in the interview with Jeroen Tel, you claimed *Lemmings* was programmed by Alter Development. I immediately checked my contract with Psygnosis and assured myself that indeed, we, E&E Software, converted it.
Remi Ebus, E&E Software


***Lemmings* was programmed by E & E Software, you know!**

Sorry about the confusion, Remi, but it was Jeroen himself who mentioned Alter Developments. It appears he's not sure who he's working for... **TMB**

Spritely laws

Dear TMB,
1 Is it illegal to use sprites from other games (*Mayhem*, for example) in your own creations?
2 If so, would it be legal if you altered the sprites, say, by a few pixels or by changing the colour?
3 Why do hairdressers always ask where you're going on holiday?
C Corbirdling, Long Crendon, Greece


We know it's lovely, but, no, you can't rip it off.

1 If you intend to sell the end product, to make a profit out of it, then, yes, it is.
2 If your new sprites are still recognisably based on the original, then that is still illegal. It's a bit like the way Whigfield's *Saturday Night* sounds very similar to an old

BITS'N'PIECES

● Do you think that *Super Street Fighter 2* will ever come out on the C64?
A Boot, Bulwell Hill

I think therefore I am. I think that *Super Street Fighter 2* will come out on the C64... but strangely, it won't. A glitch in my philosophy, I feel. TMB

● I was very impressed with the Electric Boys Mean Machine demo. Are there going to be any more demos like that? I hope so.
Danny Tod, Didcot

The demos certainly divided you lot. Some of you loved them, while others just couldn't see the point in something you couldn't play. But the new, poor human fool, er, sorry, *Commodore Format* editor, Karen Levell, has given the go-ahead for more demos, but rest assured there will always something playable on the tape for those of you who don't appreciate art. Ahem. TMB

● Is it illegal to write levels for *Repton 3* and then sell them as a Datatape?
David Connolly, Woodstock

Yes – that's called infringement of copyright, and it will earn you a costly fine if you're caught. TMB

● What's happening about our 'Next Big Thing' games ideas?
Wayne Hill, Exeter

The response to the Next Big Thing competition was overwhelming, and it's taking time to sort things out. The entries have now been forwarded to Electric Boys for judging, and with a bit of luck these mere humans will get their act together in the next couple of months. TMB

'60s song called *Rub-a-dub-dub*, and the writers of that song are taking her to court.
3 Because they're programmed to. **TMB**

50/50 visionaries

Dear TMB,

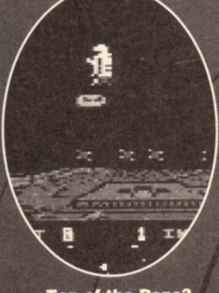
I was very interested in your Top 50 games list in issue 50. Having owned a C64 for over ten years and having amassed over 700 games, I was wondering what would come out on top.

I was somewhat surprised by a few of the entries and omissions, but this could be due to the fact that the majority of readers have owned a C64 for less than three years. But *Wizball! Paradroid* and *Dropzone* being so high up makes me wonder if that's the real reason.

For the record, here are my Top 10 games:

1 Dropzone
2 The Sentinel
3 Mayhem
4 Laser Squad
5 Bubble Bobble
6 Paradroid
7 Creatures 2
8 Impossible Mission
9 Turbocharge
10 Mercenary

Spot number one! And you gave it away with issue 50!
Matthew Allen, West Ewell

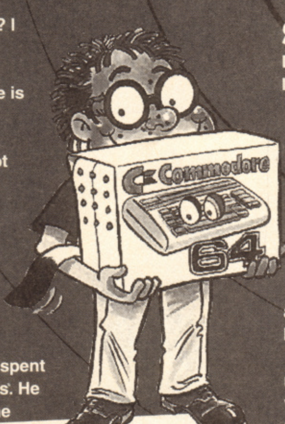

Top of the Pops?

Yes, there were some strange omissions from the Top 50, and a lot of the stranger results seem to have been the result of games we've carried on the covertape recently (some of you lot don't seem able to remember what you were playing more than a couple of months ago). But *Dropzone* was put on the tape after the results were in, so it's position was soundly deserved. **TMB**

In the Frame

Dear Mr Brain,

What-ho! How are you? I have some questions.
1 Someone at school said that you real name is Mike T Braine. Is this true?
2 I can't believe it's not butter. Can you?
3 *Please* bring back Roger Frames.
4 How about a Roger Frames fan club? I'd start one myself, but I can't spare the money.
5 My brother recently spent £800 on an Archimedes. He actually prefers it to the C64. I think this proves that:
a) Different people have different tastes.
b) My brother is a brain-dead twit.
6 Are you more intelligent than Jason Finch?
7 Could you have a national C64 Week. They have a week for everything else.
8 Did I see you playing a Nintendo Game Boy on the telly?
Lee Clarke, Southampton



1 No. But your mate at school is really an alien mind-sucking shape-shifter who works for an intergalactic tabloid intent on smearing my reputation.
2 Yes. Because it isn't.
3 We can't raise the bail. Fortunately.
4 The problem with a Roger Frames fan club is that all his fans would be too stingy to join.
5 Such understanding and tolerance.
6 Exponentially.
7 We tried. But all the weeks of the year were taken up. The NNWB (National Novelty Week Board) said we would have to share with the Artificially Resuscitate a Goldfish Week, and we didn't fancy that.
8 No. Why? Did someone that looks like me appear on the telly last week? Was it after the watershed? **TMB**

PS of the Month

Jay Ennion, Bolton
PS Please ignore the tatty handwriting and punctuation
PPS Please don't print the PS.

THE 64 SOAPBOX

MAKE YOURSELF HEARD

If you've got something to say, then TMB's letter page is the place to get your opinions heard. Write to: The Mighty Brain, *Commodore Format*, Future Publishing, 30 Monmouth Street, Bath, Avon BA1 2BW.

All letters sent to *Commodore Format* are assumed to be for publishing. We also reserve the right to edit your letters for reasons of length, grammar and punctuation.

Stop whingeing!

Dear Mighty Brain,

I'd just like to ask to start with – why are the majority of C64 owners the most selfish bunch of whining Walters around? If it's not moaning about covertapes, it's the number of pages each month, or the familiar 'when is my Mega Drive game coming out on the C64?'

Surely we need constructive criticism, not purely complaints. So please let's work together on this. We need to help each other. For example, in *CF50* take a look at Uncle Dave's Buy-a-rama and note the number of wanted items to the number being sold – it speaks for itself.

Also, as an idea, any chance of letting the *CF* readers review any new games. A second point of view would let readers stay involved with the magazine. After the Top 50 results I'd think this could be a possibility.
Mike Coles, Alfreton

Look, I'll let you into a secret. The vast majority of the people who write in aren't whingers. It's just that I like printing the whingey letters for three reasons:
1 If I print too many letters saying how wonderful we are, people think I'm 'vetting' the letters to make *CF* look good.
2 The whingey letters are generally more interesting. Letter after letter of 'isn't the world wonderful' can get mighty dull.
3 You lot react far more strongly to whingey letters; they make you write in to disagree or whatever. As this very letter proves. **TMB**

COMMODORE FORMAT

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January 1995
The phoenix

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We are not a technical helpline and we cannot (that's cannot, NOT will not) help you. If you want technical help write to Techie Tips (page 21) – that's what it's there for.

ADVERTISING PROBLEMS
If you have a problem, query or complaint about an advertiser in this issue then contact The *CF* Advertising Department in writing at, Future Publishing, 30 Monmouth Street, Bath BA1 2BW. And we'll do our damnedest to help you out.

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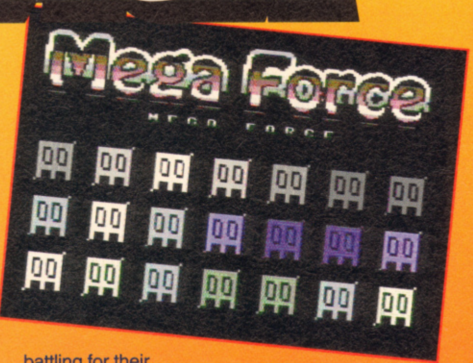
Karen would like to thank: **Dave Golder for his invaluable help and infinite patience, Jim Douglas for approving the cover despite his many doubts and John the sandwich man for saving so many marmite and cream cheese bagels.**

CF53 ON SALE
TUESDAY 3RD JANUARY 1995

POWER PACK

Karen Levell battles the demons of the tape deck to bring you this month's covertape report...

MEGA FORCE



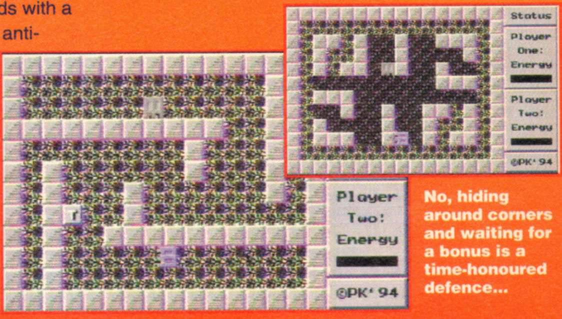
Covertape heroes Ewen Gillies and Paul Kubiszyn have been hard at it again this month; not only have they managed to compile the covertape along with an exclusive selection of PD demo parts, but they put together the superb tank-'em-up known as *Mega Force*.

Of course, they're also responsible for the ludicrous storyline behind the game, which they assure me came about after a lengthy session on the old hop juice.

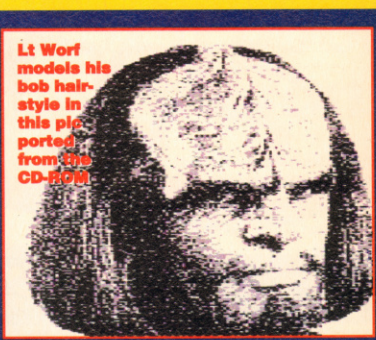
Mega Force is set in the aftermath of a devastating war. Earth's Government has outlawed the use of all weapons – in this time, conflicts are resolved in the virtual world of Mega Force, with national champions battling for their country's economic survival. For decades the world was peaceful. But now a new and deadly champion has appeared, and unless he's stopped mankind will be plunged into centuries of poverty. You are the world's last hope, but can you survive the *Mega Force*? (See, I told you it was ludicrous.)

The game, which can be set for either one or two players, includes 20 rounds of tank-blasting action. The only way to ensure your continued survival is to drain your opponent's shields with a healthy dose of your MK3 Crown Tank's anti-energy missiles, but the longer you stay on a particular level, the greater your chances of obtaining a power up token (marked with a T) to boost your tank's missiles.

Mega Force also includes a difficulty setting for one-player games. Just enter the option screen, highlight the Computer Weapon Start Level, then click on your joystick's fire button to increase the difficulty level.



No, hiding around corners and waiting for a bonus is a time-honoured defence...



Lt Worf models his bob hair-style in this pic ported from the CD-ROM

EXCLUSIVE PD EXTRAVAGANZA

Whack in your tape and you'll see three files entitled 'Start', 'Middle' and 'Final'. Each of these files contains three demos and to move between them all you have to do is hit the space bar.

These demos, which include 48K of top-quality graphics, two music tracks and a pre-calculated vector cube animation, won't be seen in any PD libraries until next year!

NO LOAD ZONE

If you're having trouble loading this month's Power Pack then plonk the duff tape in a jiffy bag, slip in a tape-sized SAE, seal it up and send it to: *CF52* Tape Replacement Service, Ablex Audio Video Ltd., Harcourt Halesfield 14, Telford, Shropshire.

CF
2
POWERPACK
tape

TAPE TO DISK

This month's Power Pack is also available on disk. To get the disk version simply cut out the token on the tape inlay card, write your name and full address on a piece of paper, pop 'em both in an envelope with a cheque or postal order, made out to Ablex Audio Video, for £1.50 (to cover duplication costs) and send it to: *CF52* Tape To Disk, Ablex Audio Video Ltd, Harcourt Halesfield 14, Telford, Shropshire TF7 4QD.

COVERTAPE SUBMISSIONS

If you have any programs or demos you wish to submit for future tapes, fill in the form below and send it along with your program to: Ewen Gillies, CF Covertape Submissions, 21 Conquerors Hill, St Albans, Herts AL4 8NS.

Your name..

Address..

....

....

Phone number..

Program name..

I confirm that I am the legal copyright holder of the afore-mentioned program, and I hereby give permission for it to appear on *Commodore Format's* covertape (and any discs mastered therefrom). I further agree to indemnify Future Publishing against legal action should copyright problems result.

Signed..

PLEASE NOTE: ANY SUBMISSIONS SENT WITHOUT THIS FORM WILL BE BINNED!

GAMEBUSTERS

DROPZONE: THE PLAYER'S GUIDE

A classic C64 shoot-'em-up, a legend in the gaming world, and a very playable game to boot. Andy Roberts rustles up some advice with just a little help from Dropzone's creator Archer Maclean.

After the devastating robot wars of 2084, the few remaining humans needed to build a tachyon-propelled star cruiser to find a Nu-Earth where they could survive. This ship needed Ionian crystals for power, though, so a consignment of men were sent to planet Io, the real life, volcanically active, orange-coloured moon of Jupiter.

It's your mission to protect the men from being attacked by a bunch of disgruntled Jovian aliens who are annoyed by the presence of humans on their moon. You are equipped with a pulse laser, a jet-powered backpack, a cloaking device, and planet-shaking strata bombs.

Getting started

You'll never attain more than a novice rank unless you familiarise yourself with the game and manage to master the coordination required to survive. This latter is greatly aided by using a decent joystick. The best sort are the ones that give a nice tactile 'click' when they're switched into position, and which have as little sideways movement as possible – the big waggly joysticks are no good because you won't know what position it's in unless you look at the screen... by which time you're dead meat.

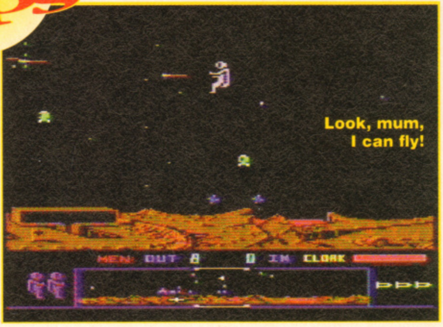
US GOLD
PRESENTS
DROP ZONE
CRACKED BY THE RIPPER
HELLO TO RIPOFF INC

General tips

The most important piece of advice I can give is not to thrust too much *(Really? – Karen)*. Well, not unless your reactions are really fast and you've kept a beady eye on the scanner for approaching trouble (and believe me, there *will* be approaching trouble). Consult the scanner regularly as it does help to know what's coming.

At the start of every fifth wave a fresh consignment of eight men arrive and are placed near the base, making it easy to quickly save all of them for a good bonus. In the first couple of waves it's quite easy to save all eight men, but if you rush to save the men during later waves, you'll end up running into more and more aliens. So, it's often a good idea to shoot a few men – that way you're only protecting two or three. It may seem a little cruel, but it's either your life or theirs.

Generally speaking, it's best to clear each area of dangers as you enter it, except perhaps for spores, which can be distracting and may well need a strata bomb. It's a good idea to try and conserve these strata bombs, because you'll definitely need them during later waves – so only release one where it will earn you a replacement. The alien's missiles are extremely accurate, in fact they're likely to find their target – you – 85% of the time. So, unless you change your speed and direction quickly you'll get hit.


Look, mum, I can fly!

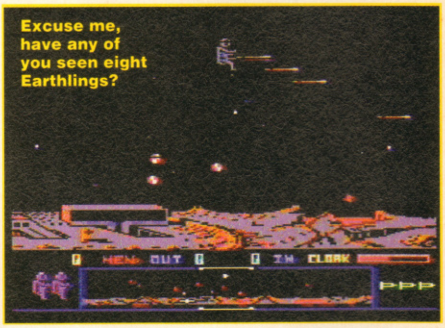
You should destroy Blunder storms on sight, otherwise you'll end up being rained on or struck by proton lightning later in the level. If you have to pass under one, check that it's not rumbling different colours prior to striking, and time your pass accordingly.

Name and Rank

For those of you with ambitions to become the ultimate space adventurer, here are the various ranks to which you can rise...

1. Not listed – practice recommended
2. Dextral Dodger
3. Trekkie
4. Moon Cadet
5. Planetsman
6. Ace
7. Planet Marshal
8. Planet Lord
9. Star Warrior
10. Solar Prodigy
11. Megastar – mission completed

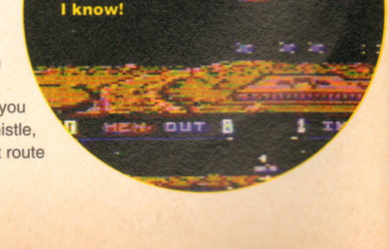
The Spores are fairly harmless, slow-moving blobs – at least they are until they're triggered by your laser. If, or should that be when, this happens, the Spores release four trailers, which can be a damn nuisance, and very hard to hit. Strata bombs don't always completely destroy Spores, and sometimes they leave a few trailers behind, so be cautious. Trailers can be shot more easily while you're at the top of the screen – just quickly turn from side to side and fire like hell.


Excuse me, have any of you seen eight Earthlings?

Trailer invasion waves are quite easy to finish once you know how, but they have to be completed fairly quickly because the Nmeye (pronounced N-m-eye) appears after thirty or so seconds. As the wave starts, move along blasting all the Spores with a few shots, then activate the Inviso cloak and let all the trailers follow you on screen. Now simply detonate one or two strata bombs to wipe everything out, then clear up any stragglers left behind. If necessary, shoot all the remaining men – you'll get a new set during the next wave anyway.

Man-handling

The man attack sequence goes as follows: when a Planter, drifting over the planet surface, detects a man below it, it stops to attack him. The man sees this and lets out a loud whistle for help, which echoes around the atmosphere. An android then emerges from the Planter and they both descend to the ground, at which point the android is released and rolls off to kill the man. Meanwhile, the Planter has mutated into a suicidal Nemesite, hell-bent on destroying you. When you hear the whistle, the shortest route


Sitting on a Nmeye is not a good idea. Trust me, I know!

LEFT ● UP ● LEFT ● LEFT ● Get in LIFT ● RIGHT ● UP ● RIGHT ● Get KNOCKER ● LEFT ● DOWN ● LEFT ● Get in LIFT ● Fall DOWN and LEFT ● LEFT ● LEFT ● UP and LEFT ● UP ● RIGHT ● Jump UP and LEFT ● Jump UP and RIGHT ● UP ● Drop knocker by door to open it (why it can't just have a doorbell like any other door is never made clear).

LEFT ● Get BUCKET ● RIGHT ● DOWN ● LEFT ● DOWN ● RIGHT ● RIGHT ● RIGHT ● RIGHT ● UP and RIGHT ● RIGHT ● RIGHT ● RIGHT ● RIGHT ● Fill bucket in pool ● LEFT ● LEFT.

Drop bucket on the cow pat ● Climb up ● RIGHT ● UP ● RIGHT ● RIGHT ● Get DRAGON'S EGG (delicious scrambled with cheese and a hint of parsley served on toast made from Mighty White bread… Mmmmm) ● Fall DOWN LEFT ● DOWN ● LEFT ● LEFT ● LEFT ● LEFT ● Get in LIFT ● Drop egg on nest ● RIGHT ● Jump on left-hand ledge ● Drop pickaxe (but not on your foot because that would be rather silly, not to mention painful) ● LEFT ● Get RUG ● RIGHT ● DOWN and LEFT ● Get in LIFT ● UP ● RIGHT ● RIGHT ● Climb UP ● RIGHT ● UP ● RIGHT ● RIGHT ● RIGHT ● Drop rug next to spikes ● Jump UP and LEFT ● Jump UP and RIGHT ● Hit SWITCH ● LEFT ● RIGHT, then talk to Daisy to complete the game...

…But not quite.

You knew there'd be a catch (well we did hint at it in the instructions).

An egg's work is never done, it seems. What you have to do next is collect all 30 coins and take them to Daisy's hut to successfully complete the game.

The locations of some coins are shown on the lovingly pieced-together map at the bottom of this page but the rest of them are well hidden and you're just blimmin' well going to have to find them for yourselves.

Well, we didn't want to make it *too* easy for you , did we? And no begging letters please, they can be so embarrassing. This time, mate, you're on your own. Good luck.

Has it made you dizzy yet?

- Before you flick the switch to rescue Daisy, get the coin that's lurking underneath the table.
- To get past the Dizzy Hawk run across the screen and press fire to bring up the inventory panel when the Hawk is about to swoop. Now exit the panel and the Hawk will appear at the top of the screen – repeat as necessary.

DIZZY
THE ENTRANCE HALL

Welcome to the Entrance Hall.

ACTION REPLAY POKES

More superbly designed and intricately crafted POKES, made especially for use with the Action Replay Cartridge (or any compatible dongle). To use them simply freeze the game, press 'E' to enter the POKEs, then press 'F3' to restart the game. A big thanks to Warren Pilkington and M. P Tweedale for sending them in.

PENGUIN TOWER DEMO
POKE 23529,189 – Infinite lives (for both players)

FANTASY WORLD DIZZY
POKE 9652,173 – Infinite Lives
POKE 9592,14
POKE 9599,7
POKE 9606,0 – Invincibility

GORDIAN TOMB
POKE 45308,173 – Infinite lives
POKE 47081,165 – Infinite time

INVADERS (PD)
POKE 28748,173 – Infinite lives

MCDONALDLAND
POKE 34849,173 – Infinite energy
POKE 41674,173 – Infinite lives

MISSION MONDAY (PD)
POKE 41355,173
POKE 61729,173 – Infinite lives

TROLLS
POKE 6348,173 – Infinite lives

GAMES Tips

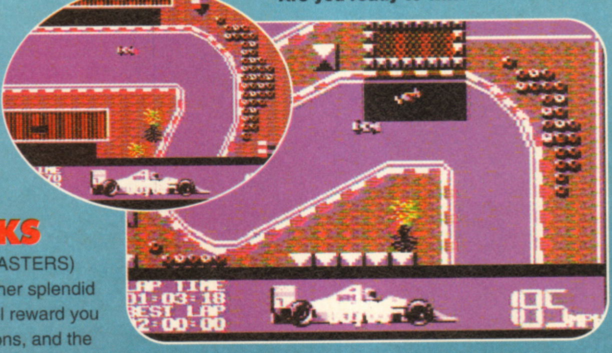
SLICKS

(CODEMASTERS)

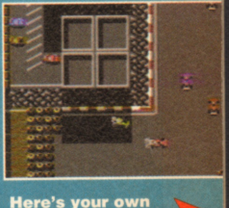
Here's a rather splendid little listing that will reward you with infinite time, no collisions, and the option of a trainer mode (ie. top speed even when off the track, plus no background collision). Note that when you RUN the listing, some data will appear on the screen – don't worry about this, everything is peachy.

```
0 REM SLICKS CHEAT BY WAZ
1 FOR X=4096 TO 4185:READ
Y:C=C+Y:POKE X,Y:NEXT
2 IF C<> 9873 THEN PRINT "DATA
ERROR":END
3 FOR I=1 TO 3:READ
A$,W1,W2:PRINT A$;:INPUT W$(I)
4 IF W$(I)="N" THEN FOR X=W1 TO
W2:POKE X,234:NEXT X
5 NEXT I:PRINT CHR$(147);
6 FOR X=0 TO 89:POKE 1792+X,
PEEK(4096+X):NEXT:SYS1792
10 DATA
032,086,245,169,032,141,037,004
11 DATA
169,021,141,038,004,169,007,141
12 DATA
039,004,076,060,003,173,241,009
13 DATA
201,208,208,015,169,032,141,239
14 DATA
009,169,047,141,
240,009,169,007
15 DATA
141,241,009,141,
032,208,096,169
16 DATA
061,141,033,009,
169,007,141,034
17 DATA
009,141,032,208,
096,169,183,141
18 DATA
217,067,141,218,
067,141,219,067
19 DATA
169,093,141,224,153,169,006,141
20 DATA 086,155,169,093,
141,088,155,076
21 DATA 013,008
22 DATA
INFINITE TIME,
4157,4167
23 DATA
NO COLLISION,
4168,4172
24 DATA TRAINER
MODE,4173,4183
```

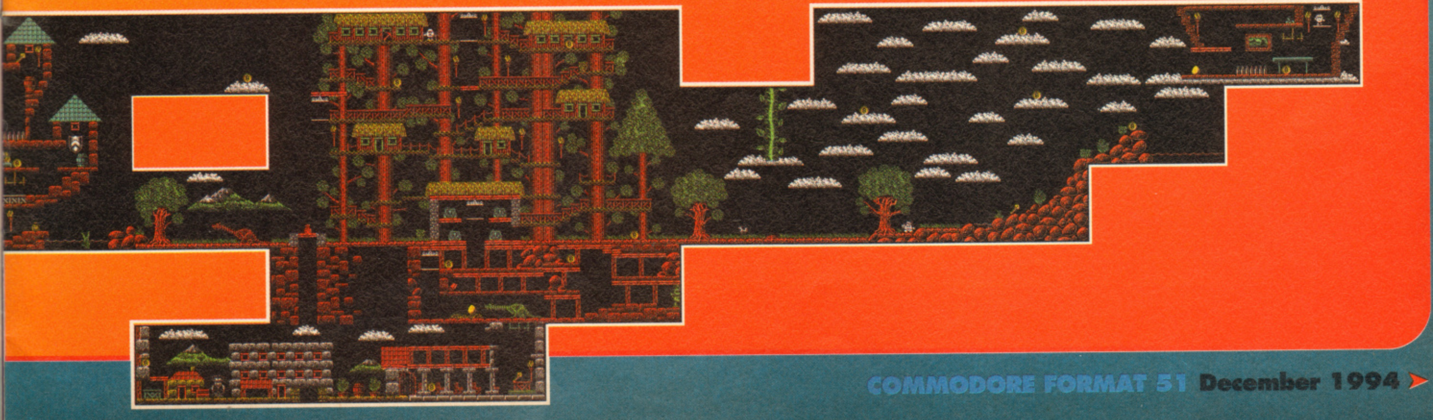
Are you ready to win?

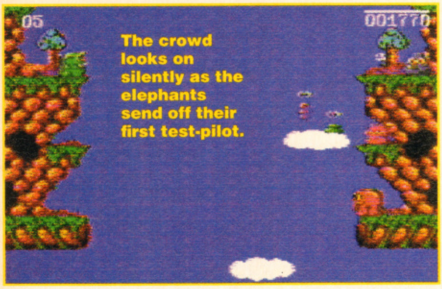


Avoid collisions and more with this neat cheat.



Here's your own bird's eye view of the race.



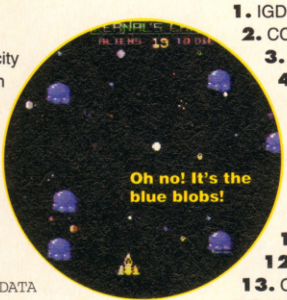

The crowd looks on silently as the elephants send off their first test-pilot.

```
16 DATA 002,141,175,088,076,000,009,169
17 DATA 173,141,227,113,141,043,096,141
18 DATA 093,096,169,001,141,208,093,076
19 DATA 013,008,LIVES,584,591
20 DATA ENERGY,578,580,TIME,581,583
```

CHAOS

Chaos (PowerPack 50)

Despite *Chaos's* relative simplicity and compelling gameplay, it can be rather tricky in places. So, for infinite lives, simply type in this listing, SAVE it for future use, then RUN it.


Oh no! It's the blue blobs!

```
0 REM CHAOS CHEAT BY WAZ
1 FOR X=521 TO 570:READ
Y:C=C+Y:POKE X,Y:NEXT
2 IF C<>5722 THEN PRINT "DATA
ERROR":END
3 POKE 157,128:SYS 521
10 DATA 032,044,247,056,169,032,141,125
11 DATA 003,141,126,003,169,002,141,127
12 DATA 003,076,108,245,087,065,090,072
13 DATA 238,032,208,169,051,141,215,118
14 DATA 169,002,141,216,118,104,173,013
15 DATA 220,096,169,096,141,135,198,076
16 DATA 000,179
```

LEMMINGS

Lemmings

(E & E software, PO Box 934,
5900AJ, Venlo, Netherlands)

To follow up the tips printed last issue, as well as the passwords for the first two different skill levels, here are the remaining *Lemmings* passwords courtesy of MP Tweedale from Swansea. Commiserations also to Dave Hood from Warley whose passwords arrived just too late. Anyway, joysticks at the ready, and squint mode on...

TAXING LEVEL

1. IGDHKDIJFA
2. CCHALCJGBB
3. CACAGJGAFA
4. JFIBIEJLAF
5. HDCGLGFELF
6. JILKFECIEK
7. HLLILAIHEL
8. GELEEAHGCC
9. JKFGGLBDGH
10. JKFIFCKKBB
11. LKJIGFCDIH
12. JAHEEDEBDE
13. CAJDJKILAC
14. JAICIFCHAD
15. GCCKHEDICG
16. IHCGCJLIGB

MAYHEM LEVEL

1. BCHZAFKCIG
2. JCADJFEDFC
3. GKFGJLDJLE
4. IJCFFEDALI
5. EACJALHACG
6. KJKFEJCBDH
7. CABDJGHFDG
8. GJGGLCJAJC
9. LKAFLBFGJA
10. FDKBDHAGHC
11. FAFGGAHIIH
12. LEFGEJCJKI
13. KHKBLEDIHI
14. DHKIKBCABJ
15. CGFEEDCEHC
16. AHEFFAHHEA

ACTION REPLAY POKES

You ought to know the score by now: freeze the game, press E to enter the POKEs, then press F3 to restart. Many, many thanks to regular contributor Warren Pilkington for sending them in.

CHAOS
POKE 50823,96 – Infinite lives

GALAXIANS
POKE 7063,165
POKE 7065,165 – Infinite lives

HEAVENBOUND
POKE 32865,1
POKE 33518,173 – Infinite lives
POKE 33468,173 – Infinite time
POKE 38171,173 – Infinite energy

TAXING LEVEL (cont)

17. GIIHGFAIJG
18. CAJCIKFEBH
19. GDALCDJLKD
20. AHAFKJLCBL
21. CGDHAKBDCC
22. LKLGGBFKIH
23. KLIAAHAJJI
24. HAFGKGLDHK
25. JIFKIEDLEJ

MAYHEM LEVEL (cont)

17. EFGHFKCGDH
18. GJEBAKBDAC
19. EAJACHGBJK
20. AJGBDJLIIG
21. GFDILCDHEL
22. KDJAKGFCHG
23. BIDAJIKBIB
24. JIFEKAAJDG
25. FCELKBBLLK

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MAKING 10th DAN

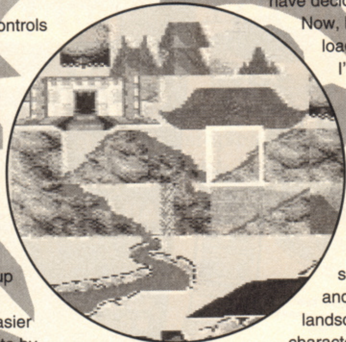
Part 8

After a strenuous couple of months, Jon Wells returns to his diary with tales of troublesome crunchers and depackers. Oo 'eck!

Hello again. I've been doing just a bit too much this month; my C64 keyboard melted right there in front of me – along with my scorched fingers. This burning digits syndrome didn't hamper my continued efforts with *10th Dan*, though, and you'll be glad to know that everything was up and running within a couple of days.

Anyway, enough of all the weird chit chat and on to… Yes, the sprite editor. Well, I've been hammering away at this now for the last three weeks, and it's still not quite finished! The main problems have been in coding the crunchers and depackers for the sprite memory. It's been a real pain getting that part working properly, but it's got to be done I suppose.

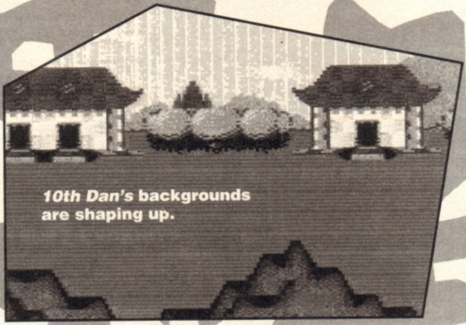
The plot routines and joystick controls for the cursor have been coded, although to save time at this point, I've laid out the sprites plexor so it's compatible with the fighters only (three sprites across by five sprites down – that's 15 in all, for those of you who can't count!). The actual cursor can be scrolled within a window of 28 by 21 characters in size. This window scrolls all the plot data that makes up the 15 sprites, and acts as a sort of zoom mode – this is a helluva lot easier than drawing the fighter frames sprite by sprite; I've yet to code the loader and saver parts for this, though. And the animation routines are still waiting too.



The individual elements.

Still, I'm getting quite excited now, because it won't be long before we start seeing the fighting sequences – and I can't wait! I've had enough of the sprite editor for the time being – to be honest, I'm getting annoyed with all the tricky coding, so I'll do something else in the meantime and come back to it later.

I've also been fiddling about with the synthesis editor that I coded a few months back – you do remember, don't you? Actually, what I've been doing is making some more fighting samples. This takes absolutely yonks to do, because you have to enter each sample by hand, byte by byte. It's quite a lot of fun making weird sounds that wake your neighbours up, though – well, I've been enjoying myself anyway!



***10th Dan's* backgrounds are shaping up.**

So far I've made a whole range of sample sounds. There's the face punch, kick, foot-sweep, fall, screams, ouches, trumps... oops! Well, quite a few anyway. Whether I'll use them all really depends on the available memory. And speaking of memory…

Multi-load horror?

A few months ago you may remember me chanting and boasting about *10th Dan* being in one solid load. Well, it won't be. I've had a long hard think about this, and have decided to turn it into a multi-load project. Now, before you all start screaming 'multi-load nightmares', I'd just like to say that I've planned the whole thing, and although the game would've been nicer as a single-load, there are some very good reasons for turning it into multi-load.

For a start there are the obvious memory reasons, like the fact that I've already reserved 16K of the memory for game-related goodies, such as extra playability, and special and hidden effects. Plus, the background landscape, which at the moment is in one character set, will be turned into two character sets. This means the screen will be split, so I'll be able to use more, and better-looking, graphics.

It'll also enable me to use background animations and sprites to greater effect. For instance, a new background will be loaded after every successive Dan.

The extra memory will also give me the opportunity to use new music tracks, along with the different backgrounds and animations. Altogether, this means that *10th Dan* will now feature 12 different graphic backgrounds, instead of the original six (three of which were essentially the same graphics), 12 different bonus levels between loads, and 12 completely different, lengthy in-game tunes, instead of just one.

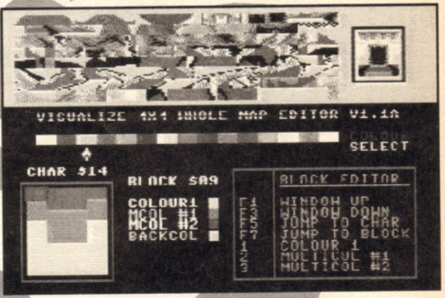
Yes, multi-loads can be a pain, but I think all the extra features I'll be able to incorporate make it worth the sacrifice. What's more, the game's been planned so the multi-loads are quick. And, if you really can't face the prospects of multi-loads, there'll be a single-load option with just the one background (yipee!).

All the main titles, music and fighting code, difficulty levels and fighting graphics will remain in the memory.

The only parts of the program that will need to be loaded are the graphic backgrounds/block and data map, bonus level, level music, background animation and operation code. This may seem like a lot, but there's only about 20K there. What's more, the loaders I'll be using can load that sort of memory in about 20 seconds from the disk, or just under a minute when taken from a cassette (that's about 20 on the tape counter).

I'll also be using interrupted loaders to overcome this delay; so while you're waiting there'll be some music as well as a little intro to the next stage. If you've ever seen games like Thalamus's *Hawkeye* and System 3's *Last Ninja* series, you'll know what I mean. Interrupted loaders are quite good because they stamp out the boredom factor of waiting for loads. The only gripe I have with all this multi-loading business, is that I'm going to have more graphics and programming to do, but then again who cares? It'll be worth in the end – I hope!

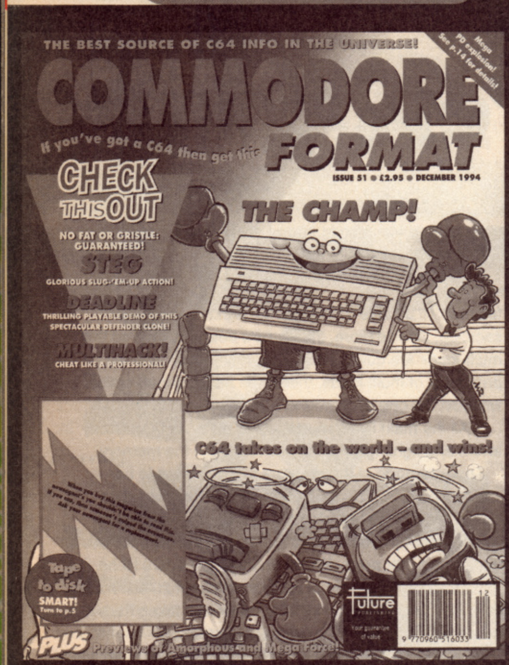
Right, that's just about all we have time for this month. Well, actually I've run out of space, y'see, and the more I waffle on the less space I have left to waffle on in. So I'll just say stay tuned for part nine. Night, night!



The map and block editors in all their glory.

The story so far...

Despite the suicide of his C64 keyboard, Visualize's Jon Wells has been hard at it over the past couple of months. *10th Dan*, the game everyone is hoping will prove to be the smartest beat-'em-up ever to grace the beige box, has been undergoing the programming and tweaking treatment for around 20 months now. The graphics are done, the fighting routines are well under way, the samples are growing in number and the joystick controls are coded. So, what's next?...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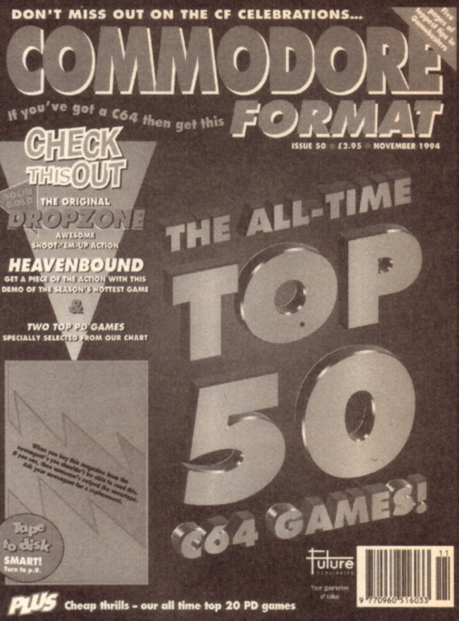
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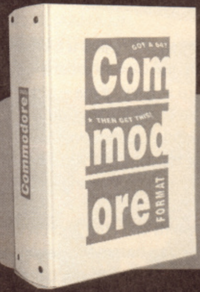
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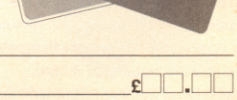

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GEOS

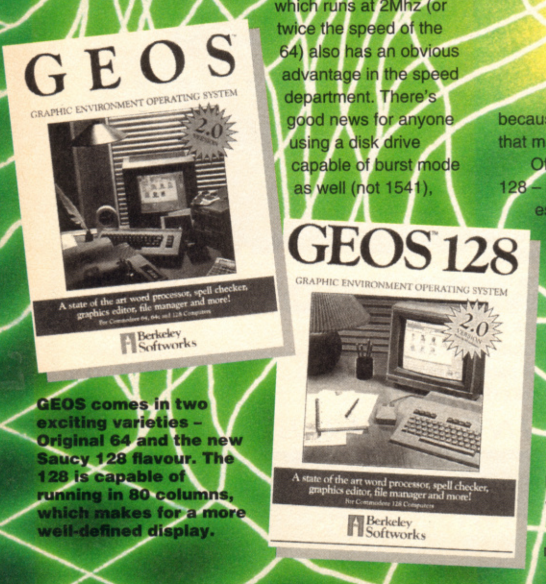
THE NEW FACE OF THE C64?

Russ Michaels unpacks the GEOS goodies and explains why this ultra-smooth operating system could be just the face-saver the C64 has been waiting for...

Let's face it, BASIC may be an incredibly useful programming language, but it lacks a certain sophistication when it comes to operating systems – especially in these Windows-dominated times. It's good to know then that the faithful old Commodore can now have the electronic equivalent of a face lift with the new GEOS system.

Like Windows, GEOS (which stands for Graphic Environment Operating System) is designed to create an effective desktop architecture for productivity software, such as word processors, databases, desktop publishers, spreadsheets and much more. GEOS can even be used to run a small business. What's more, it gives you all the versatility of the PC packages, but at a fraction of the cost. GEOS is the future of the C64, but to understand what you can expect in the coming months, you first need to familiarise yourself with the way GEOS works.

The initial GEOS package is available for either the 64 or the 128. Both these versions are essentially the same, but the 128 is capable of running in 80 columns – providing you have the appropriate monitor. This offers you a clearer and more well-defined display. The 128, which runs at 2Mhz (or twice the speed of the 64) also has an obvious advantage in the speed department. There's good news for anyone using a disk drive capable of burst mode as well (not 1541), because GEOS has a burst mode in native 80 columns that makes drive access much faster than usual.


GEOS
GRAPHIC ENVIRONMENT OPERATING SYSTEM
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A state of the art word processor, spell checker, graphics editor, file manager and more!
Berkeley Softworks
GEOS 128
GRAPHIC ENVIRONMENT OPERATING SYSTEM
2.0
A state of the art word processor, spell checker, graphics editor, file manager and more!
Berkeley Softworks

GEOS comes in two exciting varieties – Original 64 and the new Saucy 128 flavour. The 128 is capable of running in 80 columns, which makes for a more well-defined display.

Of course, we're not all blessed with the power of the 128 – indeed that particular model never proved especially popular in the UK, so from here on in we'll be concentrating on the benefits GEOS can offer the more humble 64.

The first thing you notice when you boot up GEOS is its professional appearance. The window and icon system is reminiscent of Windows for the PC, and it works in much the same way too. Each application is accessed via the main desktop, which you can return to at any time. This means that jumping between GEOS's various applications is an extremely simple affair. What's more, because data can be easily swapped between different applications, the whole thing is very flexible.

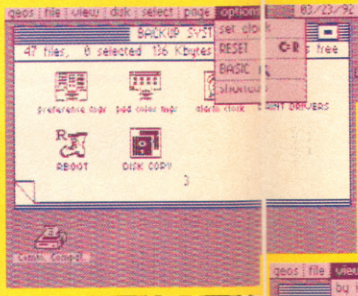
FONTPACK Plus
Callaghan
Cablemon
Dwight
Venetian
Spook
Ellsworth
Latimer
Fog
Bingo
Wheeler
Etcheverry
Softworks

Fontpack Plus offers loads of fonts for Geowrite.

From the main desktop you can access a number of functions via the pull-down menu system, which, among other things, enables you to set up the configuration you'll be using on a regular basis.

To that end, GEOS enables you to select a 1351 mouse, joystick, koala pad or inkwell as your input device. It also offers you the choice of a wide range of different printer drivers, covering just about every printer currently on the market (and quite a few of the older ones as well).

You can even set up colour preferences that determine how the GEOS system will look each and every time you boot up. Hell, it even has an alarm clock


geos | file | view | disk | select | page | options
BACKUP SYST
47 files, 0 selected 136 Kbytes
set clock
RESET
BASIC
shutdown
preference mgr
pad color mgr
alarm clock
PRINT DRIVERS
REBOOT
DISK COPY
Comm. Compat.

geos | file | view
47 files
1526
BlueChi
C.Itoh
C.Itoh
COMM
COMM 1351
CONFIGURE
Comm. Co

that'll wake you up in time for any important engagements – like a lunchtime visit to Ramsey Street perhaps.

Each disk you use with GEOS is constructed in a special way that enables it to display each individual file as an icon. The desktop can display eight of these icons at a time – they're shown as drawings on a notepad. To reach the next eight files (or their respective icons), you simply click your pointer on the turned-up corner of the current page. Each file can be manipulated via the options in the pull-down menu, or if you prefer, by using each option's shortcut keystroke (for example, Commodore key and O opens a file).

Once again, like Windows for the PC, GEOS enables you to select your file with a single click. Once the file's selected you can do all the usual stuff: open it, duplicate it to another disk, rename it and print it. You can even undo a deleted file or show the file's details, such as filetype, size, author and what have you. The details for each file have standard parameters, and although these have been set by GEOS, there is still space for you to enter your more eclectic descriptions.

File icons can also be easily moved to other notepad pages, so you can organise your files in the way you find most efficient. For example, you might choose to put all your applications on page one, your printer drivers on page two and so on. Each page will then tell you how many files are on the disk, how many kilobytes you've used, and how many more are free.

As well as using the pull-down menus, you can also manipulate the files themselves by double-clicking on their icons using your chosen input device. There are three methods of clicking on an icon. You can use a single click to highlight an icon, a rapid double-click to open or execute the file in question, or a double-click with a slight delay between clicks to pick up an icon.

This latter method enables you to place the file over the trashcan icon to delete it, over the printer icon to print it, over the disk drive icon to copy it to that disk, or over the border, where it will stay while you reorganise the notepad's pages or swap disks on a single-drive system, before copying it to a new page or disk.

Of course, your files don't have to be viewed as icons, because the desktop's View menu also enables you to display them by name, size, type and date, which all helps to locate the correct file.

Many of these functions can also be performed on the disk as a whole using the pull-down Disk menu. You can open, close, re-name, validate and format a disk from here – and even erase all the disk's files.

Well, that just about covers the most important desktop functions, there are others of course, but – hey – we don't want to spoil all your fun!

Geowrite

This is the word processor application that comes with GEOS, and what a great little one it is too! Well, it is providing you're not a member of the Stone Age tape-only fraternity.

The first thing that makes *Geowrite* stand out from its competitors is its proportional text feature. This means the text is positioned on the bitmap in such a way that it cuts out all the unnecessary gaps and spaces between letters, which enables you to fit more text on each line.

The editing area is actually about one-and-a-half screens wide; the cursor scrolls across this area to give you between 80 and 100 columns per line in a regular-size font. This makes your text easier to read than word processors that use a simulated 80 column display such as *Interword* or *Tasword*.

The functions and editing facilities, which are available from the pull-down menu, are extensive to say the least. Here's what's on offer…

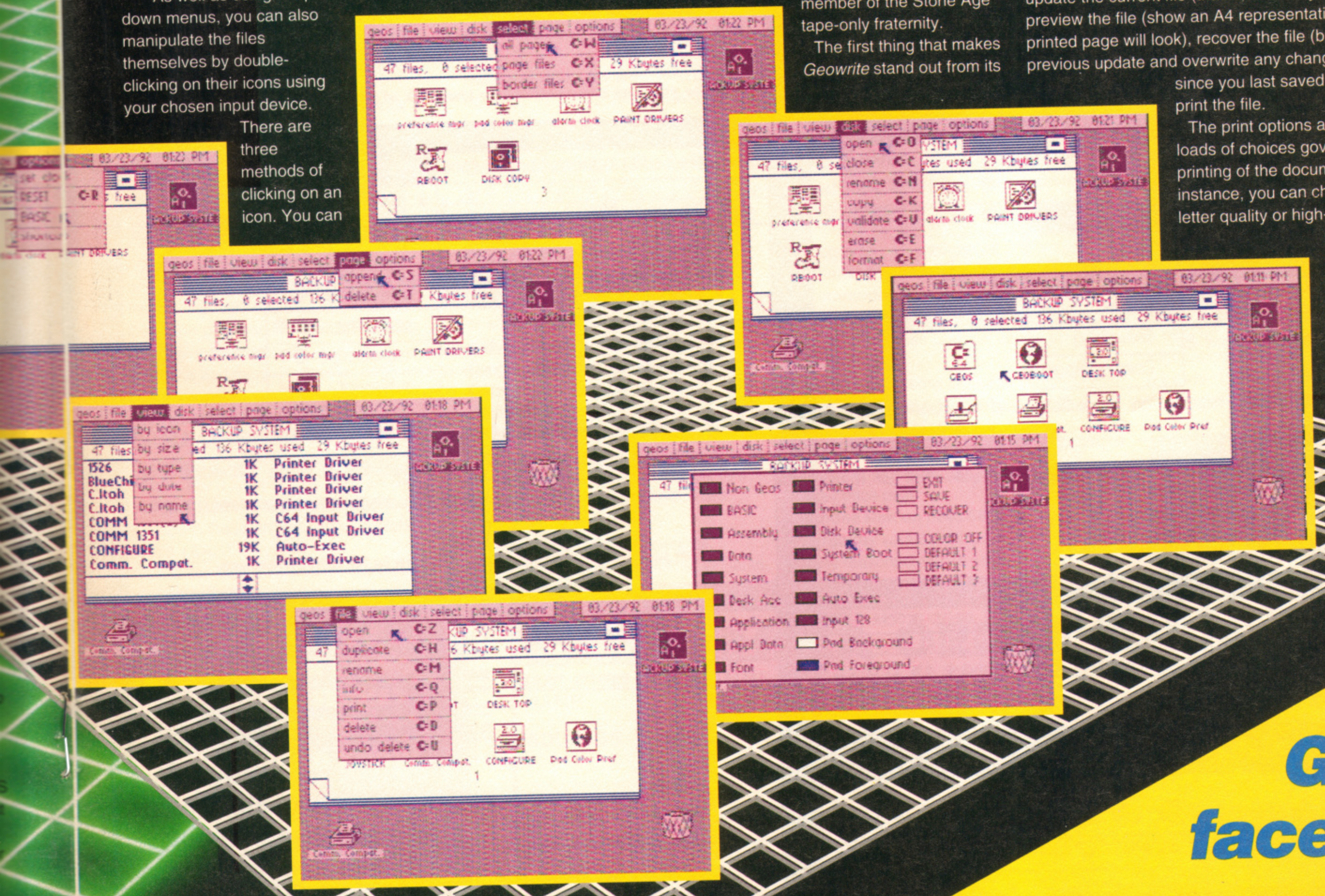
The GEOS Menu: This gives you access to the Photo Manager, Calculator and Notepad, all of which are global options that are also available in many other applications.

The Photo Manager comprises of a library of graphic objects from *Geopaint*. These are arranged in pages, with each page containing one graphic. You can select which library you want to use, and then cut and paste your chosen graphic into a Scrap before returning to the editing screen. The significance of the Scrap will be dealt with later.

The Calculator is exactly that: a calculator. It works exactly like its real-life counterpart. Next up is the Notepad. This is a bit like a diary or calender, and again it works on the pages system. The Notepad enables you to leave yourself messages, notes, reminders, etc.

The File menu: You can use this particular menu to update the current file (that is, save any changes made), preview the file (show an A4 representation of how the printed page will look), recover the file (bring back the previous update and overwrite any changes you've made since you last saved it), re-name and print the file.

The print options also offer you loads of choices governing the printing of the document. For instance, you can choose draft, near-letter quality or high-resolution printing; to print only the start and end pages; and, of course, whether you want to use single-sheet paper or tractor feed. You



geos | file | view | disk | select | page | options
03/23/92 01:22 PM
all pages C=W
page files C=X
border files C=Y
47 files, 0 selected
29 Kbytes free
preference mgr
pad color mgr
alarm clock
PAINT DRIVERS
REBOOT
DISK COPY
BACKUP SYSTEM
open C=O
close C=C
rename C=N
copy C=K
validate C=U
erase C=E
format C=F
append C=S
delete C=T
136 Kbytes used
GEOS
GEOBOOT
DESK TOP
CONFIGURE
Pad Color Pref
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by size
by type
by date
by name
1526 1K Printer Driver
BlueChi 1K Printer Driver
C.Itoh 1K Printer Driver
C.Itoh 1K Printer Driver
COMM 1K C64 Input Driver
COMM 1351 1K C64 Input Driver
CONFIGURE 19K Auto-Exec
Comm. Compat. 1K Printer Driver
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BASIC
Assembly
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System
Desk Acc
Application
Appl Data
Font
Printer
Input Device
Disk Device
System Boot
Temporary
Auto Exec
Input 128
Pnd Background
Pnd Foreground
EXIT
SAVE
RECOVER
COLOR OFF
DEFAULT 1
DEFAULT 2
DEFAULT 3
duplicate C=H
rename C=M
info C=Q
print C=P
delete C=D
undo delete C=U
RESET
BASIC
Comm. Compat.

The GEOS system offers C64 users all the benefits of the Windows operating system, but at a fraction of the cost.

Get a face lift!

The combined GEOS system and *Geowrite* application (which starts at £39.99 for the C64) is available from Electric Boys Entertainment Software. If you want more details, then grab a copy of the Boys latest product guide by sending your name, address and two first class stamps to: Electric Boys, 917B Brighton Road, Purley, Surrey CR8 2BP.

can also cancel the print option from here.

The Edit menu: This is where that Scrap mentioned in the GEOS menu section comes into play. The Edit menu enables you to cut, copy and paste text and graphics to and from a document. Whatever you've placed on the Scrap (scrapboard) will be placed in your current document when you select the Paste option.

This is handy both for placing graphics and editing text. And if you want to keep a selection of different logos and graphics, you can store them in a library found in the Photo Manager.

The Options Menu: This menu enables you to search the document for specific words, change all occurrences of that word, hide graphics (to cut down on re-draw time), open the headers and footers, select a page number and expand the document to full-width, which is useful if you've set the display to only cover a screen-width but now wish to print at A4-width.

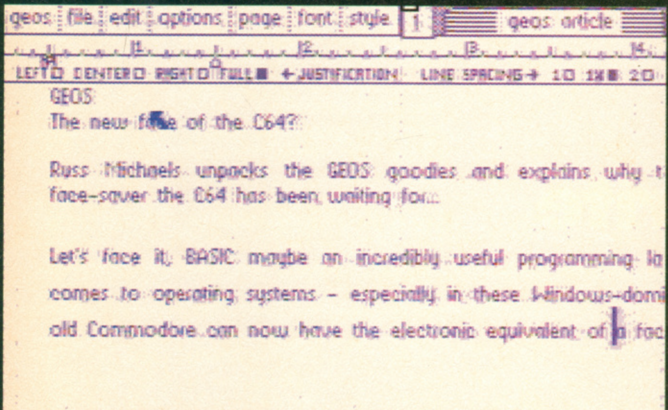
The Page menu: This enables you to navigate easily around your document. You can choose to flip to the next or previous page, or even jump to a particular page with the Goto page number option. You can also set up page breaks, title pages and NQL printing from here.

The Font menu: As you'd expect, this enables you to change your current font or change highlighted sections of text to a new typeface. GEOS comes with seven different fonts in various sizes. There are, however, a number of additional font disks available that substantially increase this number.

The Style menu: This enables you to use different font cuts, such as plain, bold, italics, underline, outline, etc. And they'll appear in the final print, even if your printer isn't capable of such functions.

The ruler at the top of the *Geowrite* screen enables you to set the size of your margins, tabs, the justification and the leading (the space between the lines of text).

So, that's the word processor, but what else has the GEOS system got to offer? Well, 'Plenty' has to be the short answer, but you needn't worry because over the next few months we'll be covering all the major GEOS applications that come winging our way. Hurrah!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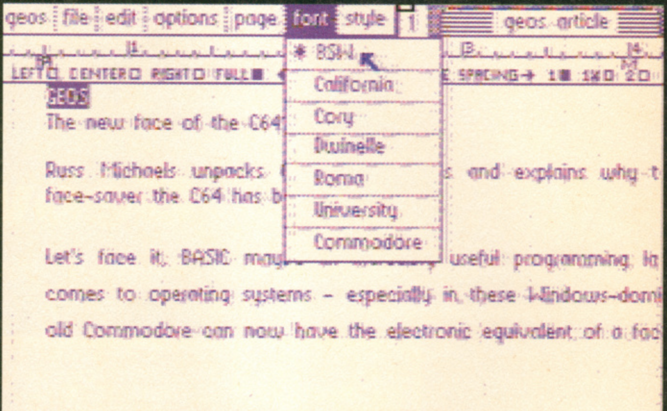
GEOS
The new face of the C64?

Russ Michaels unpacks the GEOS goodies and explains why t
face-saver the C64 has been waiting for...

Let's face it, BASIC maybe an incredibly useful programming la
comes to operating systems – especially in these Windows-domi
old Commodore can now have the electronic equivalent of a fac

First type in your text. The display here is in 80 columns.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Let's face it, BASIC may … useful programming la
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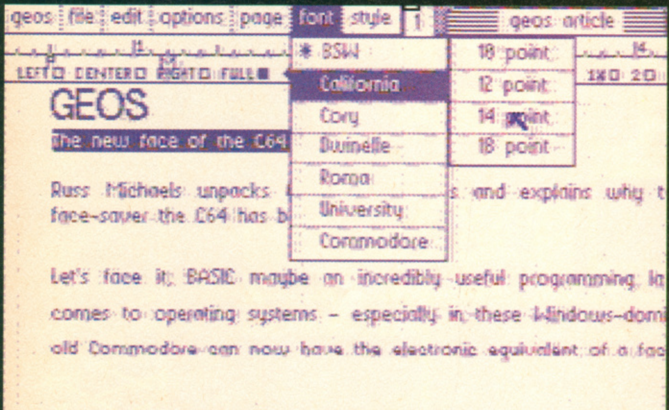
old Commodore can now have the electronic equivalent of a fac

Now you can concentrate on the look of the document...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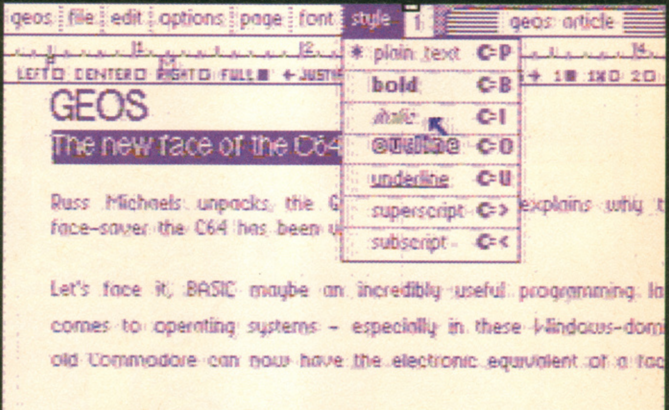
This involves finding using different fonts and point sizes...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GEOS
The new face of the C64

Russ Michaels unpacks the G … explains why t
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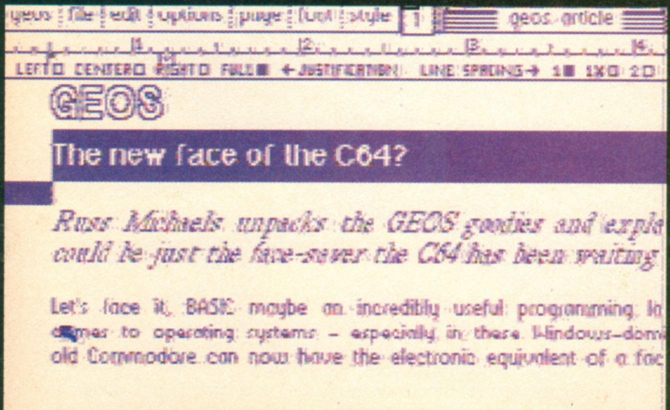
comes to operating systems – especially in these Windows-domi
old Commodore can now have the electronic equivalent of a fac

... with just the occasional italic thrown in for good measure.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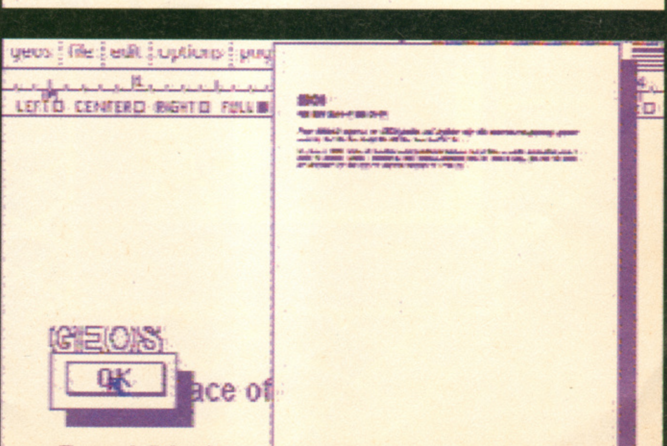
GEOS

The new face of the C64?

Russ Michaels unpacks the GEOS goodies and expla
could be just the face-saver the C64 has been waiting

Let's face it, BASIC maybe an incredibly useful programming la
comes to operating systems – especially in these Windows-domi
old Commodore can now have the electronic equivalent of a fac

There, that looks pretty damn scrummy to me...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... Oh dear. The pre-print preview highlights a few shortcomings!

BUY-A-RAMA

FOR SALE

100+ tape games from 50p to £3.50, budget to compilation. All boxed. Plus C64 mags and tapes. Plus books. SAE for list. **17 Lime Street, Eccles, Manchester.**

C64C, 3.5-inch drive with software, datasette, printer, loadsa Zzap! mags and tapes. Games on cassette/cartridge, including Turrican and SCI. Offers? (Will split).
Phone: 0539 536409.

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20 C64 games for sale, including Eddie Kidd, Jump Challenge, Auto Test simulator and Interview. 28 Marshall Gdns, Hadlow, Tonbridge, Kent.

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C64C, datasette and games. £40. Two 1541 Mk2 disk drives. £40 each. GEORAM and disks. £90. 90 disk games, 200 tape games, utilities, demos, music and Commodore Format issues 1 to 48.
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C128D for sale. £75 with games on tape and disk. Games like SimCity (disk). Lightpen and tape deck included with the manuals and books.
Phone now: 0475 723181.

C64 (as new), datasette, two joysticks and all leads. All in original boxes with manuals. £45 ono.
Phone: 0403 822105 (Surrey).

Approximately 40 C64 games, plus Commodore Format PowerPacks 2 to 47. £40. 1351 mouse. £5. Action Replay cartridge (boxed). £20. Plus more.
Phone: Paul on 01795 845017.

Commodore 64 games for sale. Very cheap.
Phone 0533 849152 for complete list.

Two 64s, two disk drives, two datasettes (need repairing), two joysticks, loadsa software (200+), magazines and tapes (150+), and books. Offers? Contact: **Mike Summers, 11 Cumberland House, Warwick Street, Preston, Lancs PR1 1LH.**

Database disks for sale. First customer free disk. For more details, send an SAE to: Iain Macleod, 24 Weavers Ave, Paisley, Scotland PA2 9DR.

Games creator – £5. 15 budget games – £10. Ten full-price games – £10. Light gun and games – £10. Mayhem – £6. Yak's Progress – £10.
Phone: 0533 715392.

Cor! Wow! Get Trumps, the amazing new card game. Send a blank tape & 70p, or a blank tape, SAE & 20p. Also, free diary and upside-down letter programs. Contact: **Daniel Mossop, Smithy Cottage, Morrington, Dumfries, Scotland DG2 0JN.**

Commodore 64 with 1541 Mk2 disk drive, disk container, 19 disks, joystick, mouse, mouse mat and holder. Boxed as new. £90 ovno. Won't split.
Phone: 0435 865046.

Wec le Mans, Target Renegade, Renegade, Ghosts 'n' Goblins, Vigilante, Kick Box Man – £2 each. Odus (as new) – £3.99. Contact: **Richard Herbinger, 18 Cherry Orchard, W-U-E, Gloucester GC12 7HT.**

WANTED

Multi-player Soccer Manager by Cult on tape. I will buy it from you. Contact: **Stephen Windridge, 41 The Chantries, Stoke, Coventry CV1 5AL.**

C64 cassette version of Pictionary and Puzznics. Will pay up to £5 for both together. Contact **8 Alan Close, Dartford, Kent DA1 5AX.**

Disc drive, Commodore 64, Great Giana Sisters. Plus instructions for Elvira and Popeye. Write to: **2 Brookdale Street, Melin, Neath SA11 1PB.**

Wanted on tape: Stormbringer (Mastertronic), Spellbound (Mastertronic) and Entombed (Ultimate). Will pay £7 for each original game. Write to: **Alex Dijkstra, Margrietenlaan 27, 4382TE Vlissingen, Netherlands**.

Big Box 2 wanted urgently on cassette. Good price paid.
Please phone: 0271 25885 after 5pm.

Commodore C64 business software wanted. Especially Company Pac1.2.3 by Impex. Plus any wages and payroll program.
Phone: 041 639 9757.

Commodore Format issue 40 with covertape, wanted desperately. Will pay up to £5. **Please contact Jamie on 0282 459621.**

Word processing package complete with manuals for C64. Disc only.
Phone: 0924 250575.

Easy Script cartridge for C64. Please help senior Citizen get full use of printer. Fair price paid.
Phone Ron on 0843 585244.

Urgently wanted: Boulderdash on disc. Any reasonable price paid.
Phone Dorothy on 0533 719036.

Simon's BASIC cartridge with instructions. Will pay any reasonable price.
Phone: 081 529 6371. Or write to: **Frank, 66 Templeton Ave, London E4 6SP.**

Wanted for C64. Power cartridge, Dr T's music software, keyboard, control sequencer, C64-128 Sound Expander module and Sound Studio MIDI compatible.
Phone: John on 0533 830361.

SWAPS

I will swap my Commodore 64 with datasette and Commodore Format and Commodore Force mags (including covertapes) for an Amiga 600 with games and Amiga mags (including coverdisks). Contact: **Alan Bell, 11 Kevan House, Wyndham Road, Camberwell SE5 0LP.**

USER GROUPS

SEUCKERS: now over 230 games. For the latest list send an SAE to: **SEUCKERS, 12 Arthur Ave, Caister on Sea, Great Yarmouth, Norfolk NR30 5PQ.**

Do you program or write music on the C64? Yes? Well, write to me and join our programming group. Contact: **10 Roseberry Rd, Norwich, Norfolk NR3 3NA.**

A new fanzine is starting soon. For more information please send an SAE & 50p to: **S Lewis, 13 Shelly Close, Catshill, Bromsgrove, Worcester B61 0NQ.**

PEN PALS

Male or female pen pal wanted to swap ideas and games for the C64. Contact: **Jason Page, 8b Peabody Estate, Farringdon Lane, London EC1R 3BA.**

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COMMODORE EMULATOR

A PC-dominated future maybe innevitable, but Sean McManus reveals how you can take your C64 into the 21st Century and beyond...

...to this!

From this...

What the petty squabbles between computer users often fail to recognise is that each computer is ideal for a different purpose. The Commodore is great for games, but, let's face it, it's not exactly going to infiltrate any top business institutions.

As some C64 users upgrade for greater applications potential and a gateway to multimedia, many will find the PC far from ideal. Careering back down the learning curve, they will have to dump their obsolete software and programming experience. But all is not lost, with the help of a shareware emulator C64 enthusiasts can hide a software Commodore inside a PC.

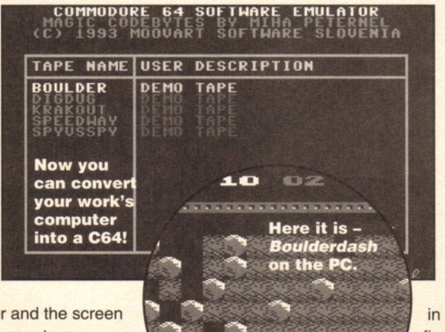
This emulator can be copied freely as shareware, but suffers from premature release. Hoping to pick up on feedback, Miha Peternel released this version prior to the final cut, which was due out in November 1993. Miha Peternel is no longer at the address quoted, however, and this version appears to be the only one to have seeped through the shareware network. The trouble is it has a major bug: the sound doesn't work. And while it should be compatible with a Soundblaster card or the PC's internal speaker, all it can manage is a high-pitched squeak with blobs of tune buried way beneath it.

The emulator does look and feel like a Commodore, though. The graphics and colours appear authentic and the keyboard has been intelligently reproduced. TAB has become RUN/STOP, the Commodore key lies behind ALT, and F12 (whose position varies from PC to PC) acts as the RESTORE key. The conversion is so intuitive that most of the time you can unleash your fingers on the keyboard and the functions are more or less where you would expect to find them.

To get things running smoothly, you have to balance the sliders for the raster and the screen refresh rate. The raster rate represents a compromise between speed and smoothness. If it's set too slow for your PC, the sprites will jerk from one side of the screen to the other, without even ghosting in the middle. If it's set too fast, things grind to a halt, devoting all the processor time to refreshing the sprites. Once this rate is set sensibly, the screen refresh rate can be adjusted to the fastest setting possible – this tends to suddenly halt everything when it reaches its optimum point.

Running beneath both screen sliders is a clock speed control. The easiest way to adjust this is to run a program and then play with the sliders until everything moves at the Commodore's normal speed. Although fiddly at first, the settings enable the emulator to run at its maximum potential on all computers, instead of dithering to account for extra fast PCs.

Transferring software from a 1541 disk drive is no problem if you're handy with a soldering iron or if you take the instructions included to a local electrical specialist. Software can be transferred using programs on the disk, although it's a little bit awkward, because the PC needs to be artificially slowed down first. Images for use with the emulator can then be saved to a DOS format disk. Quirky formats will bring things to a halt, making some commercial games non-transferrable. A comforting on-screen message would have been nice during the dark delay in unpacking software. The first few times I tried to load a game, I assumed the machine had hung up, when it was in fact too busy unscrambling the game to worry about good manners.



```
COMMODORE 64 SOFTWARE EMULATOR
MAGIC CODEBYTES BY MIHA PETERNEL
(C) 1993 MOOVART SOFTWARE SLOVENIA

TAPE NAME  USER DESCRIPTION
BOULDER    DEMO TAPE
DIGDUG     DEMO TAPE
KRAKOUT    DEMO TAPE
SPEEDWAY   DEMO TAPE
SPYVSSPY   DEMO TAPE
```

Now you can convert your work's computer into a C64!

Here it is – *Boulderdash* on the PC.

For anyone interested in writing software using the emulator, there is the option to convert from DOS back to a 1541 drive for more mainstream distribution. The main barrier to program development will be the lack of utilities, unless you transfer them all yourself. The software supports 6510 CPU instructions, memory management and sprites and, to all intents and purposes, behaves just like a C64. BASIC programmers will certainly have no problem. Machine coders might be dubious about the risk of the firmware differing somewhere along the line, though.

You'll need to be packing a fairly fast PC to really enjoy this emulator. A 386 running at 40Mhz or a 486 at 33Mhz is recommended, although there is also a cut down 286 demo on the disk. VGA display is recommended for best results.

If you've played with fishtank simulators and personalised backgrounds on the PC, this emulator is ideal for you. At the end of the day, it's a trainspotterly gimmick, separating the tinklers from the real enthusiasts. Lacking the sound and bogged down by the relative difficulty of transferring software, it's not ideal for entertainment. Being short of utilities and a genuine user base on the format, it's not perfect for programming. That said, until the full version surfaces, this one will be welcome on many a hard disk. A real home from home.

COMMODORE EMULATOR

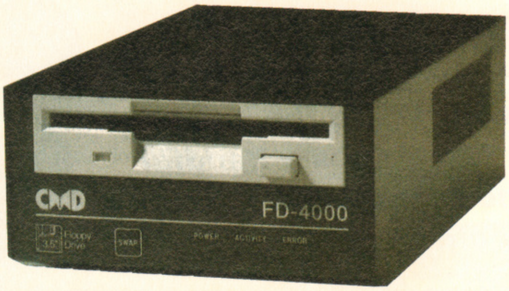
Price: £5 copying fee.
(There is no registration fee for this version.)
~~Available from DM Computing, The Beeches,~~
Currington Drive, Shobrooke, Crediton, Devon,
EX17 1AU.
☎ 0363 775721.

- ▲ Looks and feels authentic.
- ▲ Contains instructions for software transfer.
- ▲ It's shareware!
- ▼ Not so golden silence!
- ▼ The speed calibrations can be tiresome at first.

75%

WELL 'ARD DISK DRIVES

Cast your mind back to CF47, a time of barmy summer nights and our first Well 'ard feature. If you remember, Russ Michaels of Electric Boys fame was revelling in the delights of the American hardware scene. Well, now he's back with the details...



Okay, so you liked the sound of the floppy drives we mentioned during our last encounter, but how will they sit with your current set up? What exactly are they going to add to your life? And how will they make your friends spit with envy? Well, just shove this feature under their noses and watch the lava spew.

High-capacity 3.5-inch floppy drives

This month's premier attraction immediately shows you the power of your C64. While Macintosh and PC owners struggle along with 1.44Mb disks and Amiga owners are left stranded with laughable 880K disks, C64 owners with Creative Micro Design's FD series drives can justifiably smile.

The FD2000 offers you an astounding 1.6Mb, while the FD4000 will blow your mind with its 3.2Mb disks. These FD drives also offer you far better compatibility than even Commodore's own 1581, and with an easy-to-use operating system and all the utilities you'll need to run and maintain them, you really can't lose.

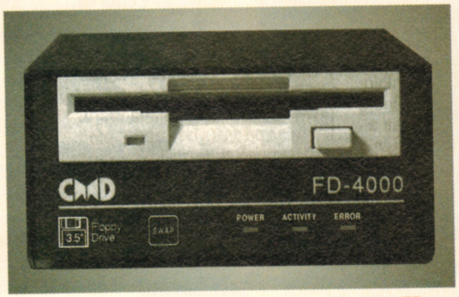
Compatibility

One question that always seems to arise when upgrading your system, especially with a new disk drive, is what you should do with all your old disks and software; do you still have to use your old slow drive with them? And what about the software that's only available on 5.25-inch floppies?

Well, the FD drives are actually compatible with quite a number of different disks and formats. Both drives can format double-density disks at 800K (which means they're fully compatible with the 1581) and high-density disks at 1.6Mb. What's more, the FD4000 can use the new, enhanced-density disks, which offer up to 3.2Mb of storage space.

By using the *Big Blue Reader* utility it's also possible to format disks for 720K, 1.44Mb and 2.88Mb for use on PC machines. This is extremely handy because it enables you to share files between both platforms.

That's not all: the powerful operating system in the FD not only enables you to create multiple partitions and sub directories, but also enables you to create partitions that emulate the 1541, 1571 and 1581 drives. Each of these partitions identically copies the track and sector layout of the emulated drives. This means you can run software written specifically for the Commodore drives on the FD. And because of the FD's higher storage capacity, you can have many emulation partitions, each acting as a full disk on the Commodore drive.



And here it is: the FD 4000 drive in all its compact loveliness. Its vital statistics in inches are: 7.7 by 4.11 by 2.5, making it Commodore's smallest ever floppy drive.

Special features

Unlike most disk drives, the FD systems aren't restricted to certain device numbers; the four dip switches on the rear side enable you to set the default device number as anything between 8 and 15. On top of that, there's also a useful Swap button on the front panel that enables you to swap between device 8, 9 and default, giving you maximum efficiency and compatibility with software that expects to be loaded from a specific device.

The FD is also available with optional RTC (Real Time Clock), which automatically 'stamps' your files with the date and time. And should you be running GEOS (see page 12 for all the mouth-watering details), RTC will automatically set its clock too. But don't worry if you can't afford to shell out for this at the same time as the drive, because you can always buy it as an add-on later.

Software

All FD drives come complete with *FD-Utilities*, which is a comprehensive collection of copying, backup and partitioning tools. Included on the disk are: *MCopy* (a whole disk copier), *FCopy* (a two-drive file copier) and *BCopy* (a powerful backup utility that enables HD and RAMLink owners to back up large partitions or entire drives to several disks). You can also use *BCopy* to back up FD disks to 1541 or 1571 drives.

The FD-Tools program has a simple-to-use menu system that enables you to perform all your formatting and partitioning with ease – and without having to plough through loads of manuals.

Then there's GEOS, of course. CMD's *GEOMakeBoot* can boot up the GEOS program on your FD drive, while the CMD-Move tool on the *Utilities* disk will enable you to access partitions of it. (FD drives are only compatible with version 2.0 of GEOS.)

And if you're still worried about your old tape and 5.25-inch disk software, then you'll be pleased to hear that Electric Boys Entertainment Software now runs a re-mastering service to transfer your programs to ordinary and FD disks. Electric Boys also has a number of titles in production for the US market. *(Oi, Russ! Stop plugging your company and get on with the article – Karen)*

So, now you know what the FD2000 and FD4000 are all about, the decisions is yours – do you want to struggle on with low-capacity drives or deprive yourself totally by using tape alone? Or do you want to become one of the thousands of Commodore users who already enjoy a current and productive system? The choice is yours...

Where to get them

The FD2000 and FD4000 are both available from Electric Boys Entertainment Software. And the prices are as follows:

FD2000 (800K and1.6Mb)	**£159.00**
FD2000 with RTC	**£169.00**
FD4000 (800K, 1.6Mb and 3.2Mb)	**£199.00**
FD4000 with RTC	**£209.00**

For a copy of the Electric Boys latest product guide, which includes the prices and details of all the latest American hardware and GEOS software, send your name, address and two first class stamps to: Electric Boys Entertainment Software, 917B Brighton Road, Purley, Surrey CR8 2BP. (Please state whether you're a disk- or tape-user.

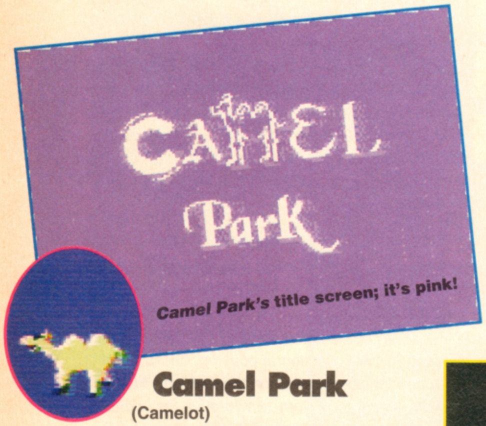
Next Month

We'll be looking at the wonders of JiffyDOS, the disk drive speed enhancement system that can increase normal loading times by a factor of 15. See you there!

PD FORMAT

It's cheaper than a car boot sale, more fun than a day at Alton Towers, and is known to the world as PD software. Andy Roberts test drives a handful of the very latest megademos – but which one will turn out to be the rusty old Skoda?

Look out, look out, there's a Predator about!



Camel Park's title screen; it's pink!

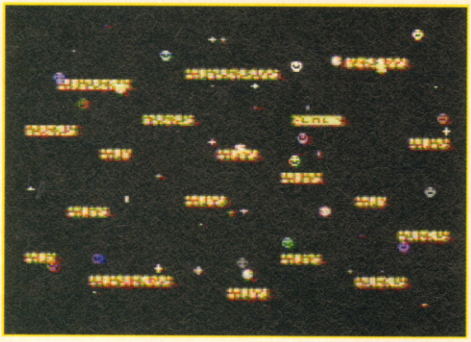
Camel Park

(Camelot)

Camel Park is another megademo from the world-famous group responsible for the classic *Ice Cream Castle* and the critically acclaimed *Tower Power* demo (well, critically acclaimed by me at least). I'll cut the suspense straight away: *Camel Park* is *not* as good as *Tower Power*, but it's still a formidable piece of software. The first section of the demo is basically a menu that enables you to view either the whole demo, or to start from one of four selected points. This is an original concept, which enables you to skip straight to your favourite bits with the minimum of fuss.

As for the rest of the demo, well, read on…

- **Introduction:** this is actually a fairly sparse list of details about the demo – although the radius plots behind the text are quite stunning, and can only really be described as monochrome fireworks. Calculated gravity has never looked so good.
- **Pacman Loader:** this is basically a filler, which occupies the monitor while the next program is being loaded. As you may have guessed, it features the world-famous Pacman (or Pac, to his friends) working his way down the screen and devouring the text as he goes. Unfortunately, it doesn't offer much entertainment value, and is really a little too bland for a demo of this type.

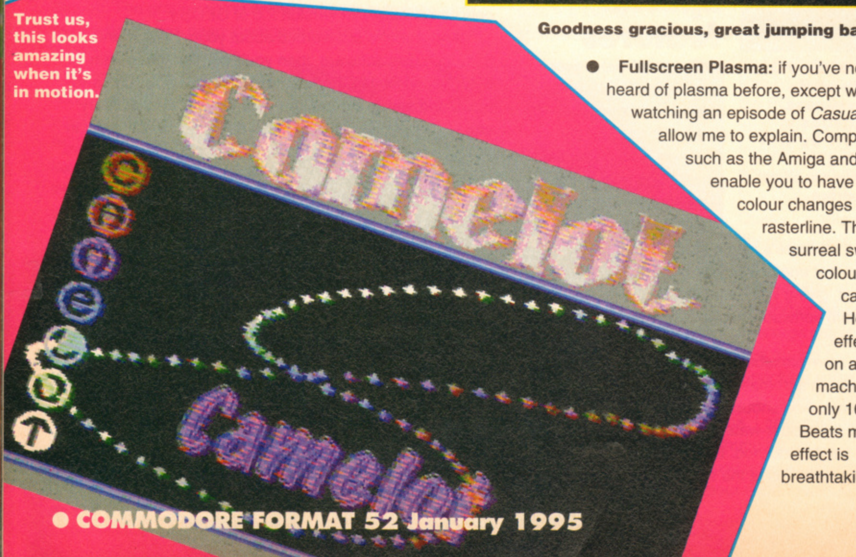


Goodness gracious, great jumping balls.

- **Fullscreen Plasma:** if you've never heard of plasma before, except while watching an episode of *Casualty*, allow me to explain. Computers such as the Amiga and PC enable you to have dozens of colour changes on each rasterline. This creates a surreal swirling colour effect called plasma. How is this effect possible on an 8-bit machine with only 16 colours? Beats me, but the effect is breathtaking.

Another job for Kirk and co.

- **Cool Camel:** this is the first of three appearances made by Cool Camel, and it comes in the form of another bland loader. This animal celebrity remains motionless as letters drop on to the screen to spell out the word Camelot. And in case you hadn't guessed, Cool Camel's humps form the letter 'M'. Rivetting stuff.
- **Jumping Balls:** this isn't the sort of thing you really expect to find in a quality demo. A myriad of tiny balls bounce down and across the various 'platforms' dotted around the screen. If you've never had the chance to mess around with a sprite multiplexor, it probably won't impress you very much.

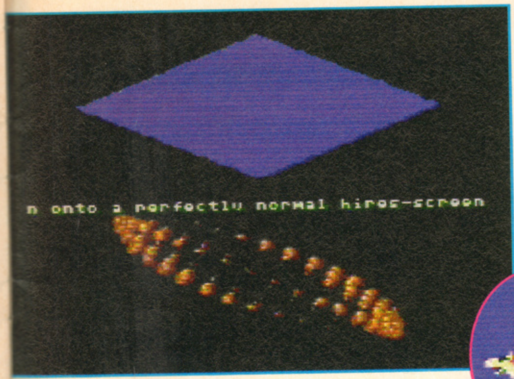


Trust us, this looks amazing when it's in motion.

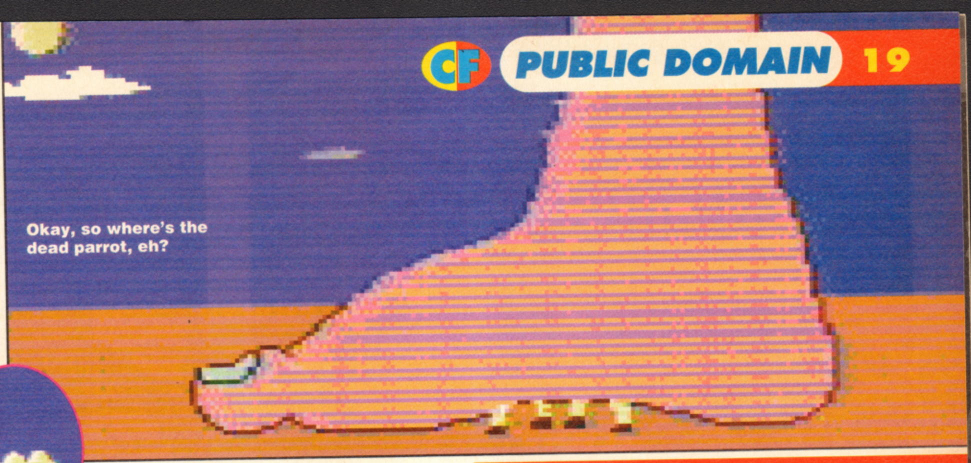
Parallel

This month sees the birth of another PD library, Parallel Logic Public Domain. The new library is based in Northern Ireland, and is, according to its founder, the first one ever to be based there. This latest addition brings the total number of libraries to ten – but is there a gap in the market for another company? Well, Philip Boyce seems to think so, indeed his software company, Parallel Logic, has already released one PD product called the *Time Crystal* (reviewed in *CF44*).

PLPD goes on-line on the 1 January 1995, and Boyce assures us that it already has several demos and



The impressive Asymmetric Zoom.



Okay, so where's the dead parrot, eh?

- **Camel Splash:** this is another brief loading interlude, but this time our old friend Cool is squashed by an appallingly drawn *Python*-esque foot. Oh dear, can things possibly get any worse?
- **Chessboard:** thankfully, the programmers make up for the embarrassing camel interludes with an extremely well-programmed visual effect. Imagine a tiny chessboard, no bigger than eight by eight pixels (a single character). Now imagine that chessboard zooming smoothly towards you until it fills the whole screen. Got it? Well, now you know what to expect, because that's precisely what this part does. What's more, the overall effect has to be seen to be believed. How can they possibly follow that?

Chill out with the Fountain.

- **Camel Jumper:** No, I'm not talking about Jeff Minter's favourite item of clothing. As the next section loads, Cool Camel bounces around the screen. Then bounces some more. And finally, bounces again.
- **Asymmetric Zoom:** this is a very slickly programmed effect, in which various shapes merge and morph into a variety of different silhouettes. It's the nearest the 64's come to vector graphics, and it moves ever-so-smoothly. The 'unlimited bobs' effect at the bottom of the screen warrants special attention too.
- **Waterfall:** this isn't so much a demo part, as a brief effect that happily fills the loading interlude. It's a rather simple two-colour fountain effect, and it's quite relaxing compared to the cycling colours and loud music that accompanies the rest of the demo.

- **Cyber Vector:** this is another variation on the vector graphics theme, but this time the data is repeated at the edges of the objects to produce a clever 'serrated' effect. It's nothing spectacular, but it does go to prove that imagination is not dead.

Cool Camel? I think not!

- **Tetrisload:** sadly, you don't actually get to play a *Tetris* variant as the next part loads in. Instead, various *Tetris* blocks fall down the screen to form a logo. Once that's complete the top of the screen is filled with a various sinus patterns.
- **Heat Fun**: this is another relatively simple effect, a similar version of which can be found in various other Public Domain demos. In this character version, blobs of colour fly around the screen, increasing in brightness wherever they overlap.
- **Bobby Border:** this is one for technical freaks who strive to squeeze as much out of the C64 as is humanly possible. This part features dozens of bobs moving in and out of the side-borders. Occasionally it switches the bobs

cml
cml
PLEASE NOTICE THAT GRAVITY IS CALCULATED

Domain

games in production. As an initial taster, however, Boyce has put together a two-disk compilation that includes various demos, games, pictures and utilities. Admittedly, much of the software is either old or badly coded (some of the programs are written in BASIC), but there are a few classics on there too.

If you'd like to get hold of this sample set, simply send a cheque or postal order for £2 (made payable to Philip Boyce) to the address listed in the PD Format directory on the right. Oh, and don't forget to tell them exactly who sent you.

PD Format Directory

It would be biased, unfair, and downright naughty to recommend any one particular library – PD software is free, and most libraries will have the latest software in stock. That's why we've spared no expense and produced the PD Format directory.

If you've never ordered PD software before, write to a few libraries (enclosing an SAE) and ask for an up-to-date catalogue. Some libraries only stock disk-based software, so it might also be a good idea to mention whether or not you own a disk drive. To make life easier, we now specify whether the companies stock tapes (T) or disks (D) next to the company's name – all at no extra cost.

If you run a PD library and can't find your company listed here, write to us at: PD Format, Commodore Format, 30 Monmouth Street, Bath, Avon BA1 2BW. And if you're a programmer or PD library manager, that's also the address to which you should send your latest software.

Binary Zone PD / The Guild (T & D)
34 Portland Road, Droitwich, Worcestershire WR9 7QW.

Electric Boys PD (D)
917B Brighton Road, Purley, Surrey CR8 2BP.

Fox PD (T)
6 Sturton Avenue, Goose Green, Wigan, WN3 6SZ.
KDPD (T & D)
9 Failford Place, Kilmarnock, Scotland KA3 1UJ.

Kingsway PD (D)
72 Glencoe Road, Sheffield S2 2SR.

MK PD (D)
1 Westmore Close, Burrows Park, Northam, North Devon EX39 1SR.

Megatronix PD (T & D)
21 Tiled House Lane, Pensnett, Brierly Hill, West Midlands DY5 4LG.

PLPD (D)
40 Windsor Avenue, Whitehead, County Antrim, Northern Ireland BT38 9RX.

Shareware Plus (D)
Fulfilment Centre, 66 High Street, Pershore, Worcestershire WR10 1DU.

Utopia PD (D)
10 Cwmaman Road, Godreaman, Abedare, Mid Glamorgan, CF44 6DG.

for a scrolling message that's virtually impossible to read. After a brief bitmap picture entitled 'Odin's Skyride' (which is a superb bit of fantasy artwork) comes the end section. Here the credits are displayed over a backdrop of wibbly-wobbly pseudo vectors.

Camel Park is quite an unusual release for Camelot. After the incredible *Tower Power* demo, you'd have expected them to release nothing but top-quality productions, but some of the sections of this megademo are mediocre to say the least. It *is* entertaining, though, and that's what counts in the end, right?

85%

Unpleasant Ways to Die

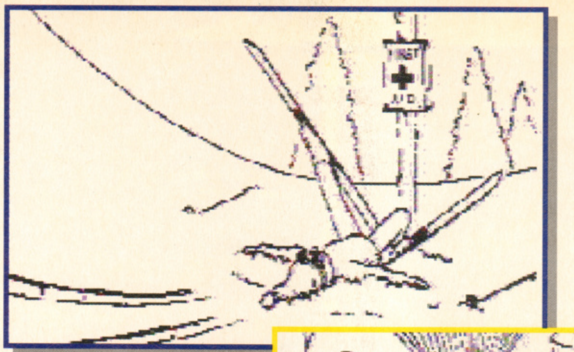
(Hysteric)

Original demos are a truly rare breed nowadays – practically every effect you could possibly think of has already been done to death, whether good, bad, or indifferent. In a world were originality is scarce, it's quite unusual to find an enjoyable demo without the rasters, colour cycling, vectors, plasma, and other such stimulants of older demos.

Unpleasant Ways to Die is basically a slideshow, comprising 21 high-res monochrome pictures depicting… well, 21 unpleasant ways to die. The idea comes from a book by the artist Elan Fleisher, who also produced the digitised versions seen in this particular binary display. The demo is self-running, with each picture loading as the previous one is displayed. There's also a scrolling message and a choice of five different music tracks (including one from the legendary Reyn Ouwehand).

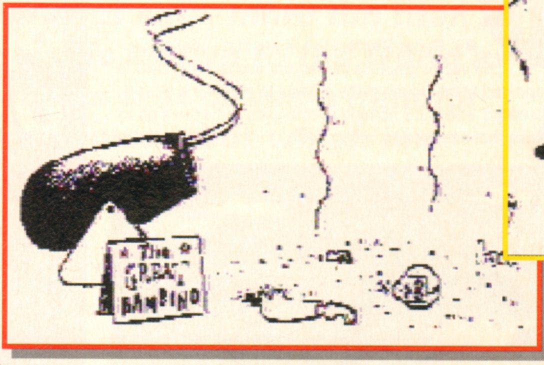
While the pictures are only mono, they use FLI-Interlacing effects for extra detail and are, on the whole, quite superbly drawn. They have life, movement and, above all, they're funny. My particular favourites are the window cleaner (who never actually makes an appearance), the 'Great Bambino' (a rather unfortunate human cannonball), and the parachutist who gets in the way of a helicopter's rotor-blades. Yes, it lacks any sort of polish or colour; and yes, it may become tedious after the first couple of viewings. However, it's funny, witty, sick, and shows great thought and imagination. If you liked *Pulp Fiction*, this demo will be right up your boulevard. Recommended.

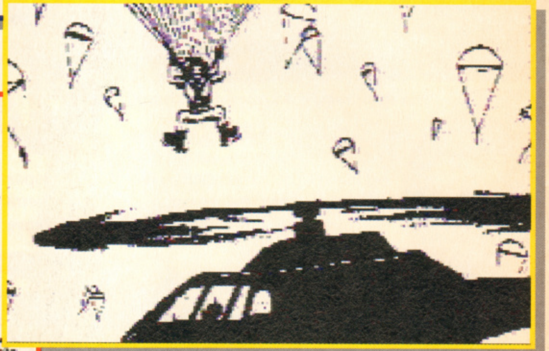
80%



'Whatever happened to the St Bernards and brandy?'

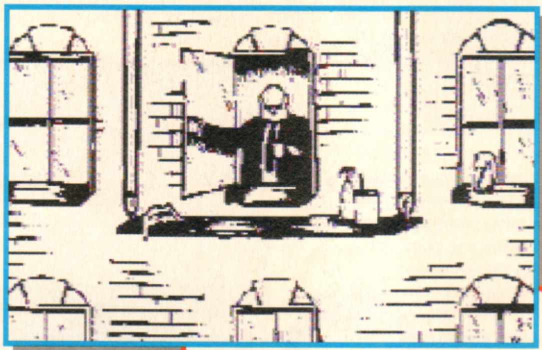
'He just went to pieces.'



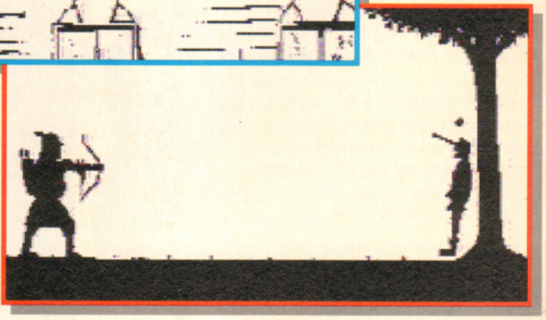


Mike Smith takes to the skies once more...

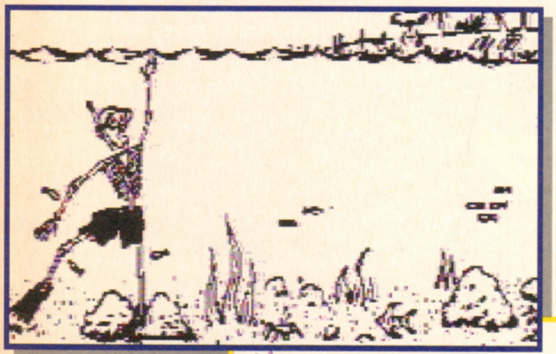
Unpleasant Ways To Die



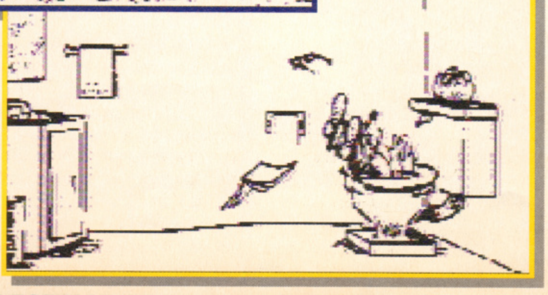
'Could I offer you a cup of tea by any chance, Mr...? Oh, he must've left early today.'



William Tell's hangover was playing havoc with his aim!



'Glug, glug, gluuuggh!'



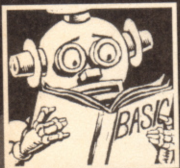
'How's the new power flush, dear?'

Next Month

Hold on to your hats, nail down your valuables, batten down the hatches, lock up your daughters, rinse out your milk bottles, blow your nose, brush your teeth, and comb your hair in preparation for the top ten demos of all time. Miss it and regret it.

TECHIE TIPS

From disk drives to interfaces, overworked joysticks to selling your own games, Jason Finch gets to grips with all those most technical of queries about your C64. What a hero he is.



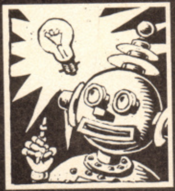
HOW TO SAVE THE WORLD

Dear Techie Tips,

1 May I suggest that as a complement to your Mean Machine Code series, and as a help to programmers everywhere, you thrust upon us the entry points of the Basic ROM Interpreter with explanations of their usage. I reckon this could do wonders for the C64 scene.

2 As you will have noticed, on the other side of this letter is a small proglet which you may consider printing for others to use. It's a "PRINT AT" routine and to use it you simply do SYS 49152,X,Y,A$ where X is along, Y is down, and A$ is the string of characters to be printed.

Charles Samson, Dundee



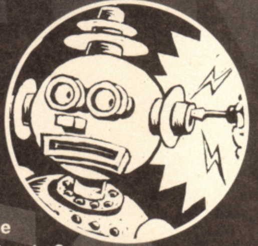
1 This is a stunningly good idea but alas I'd thought of it already. Shame, huh; all that credit you might have received for making the suggestion that saved the world. The trouble is, I'm only a mere slave and it's the powers that be who make decisions like that. So I shall go grovelling down on my knees, begging later on. The Kernal routines are what would be really good.

2 I hadn't noticed actually. Thanks for telling me... ah yes. Cheers for the program. I've printed it down below so everyone can use it; dead good.

THE PROGLET

```
10 REM PRINT AT BY C.SAMSON
11 FOR X=49152 TO 49192:READ Y:POKE
X,Y:C=C+Y:NEXT X
12 IF C5394 THEN PRINT "DATA
ERROR":END
13 PRINT CHR$(147)
14 SYS 49152,5,12,"PLEASE PRESS A
KEY"
15 POKE 198,0:WAIT 198,1:POKE 198,0
16 END
17 DATA
032,241,183,138,072,032,241,183
18 DATA
104,168,024,032,240,255,032,253
```

CARTRIDGE COVERAGE



Dear Techie Tips,

1 I have a C128 with two 1541 MkII disk drives. Every time I switch on, I get split vertical lines across the screen. Can you explain why?

2 Will the AR cartridge work in 128 mode or just in 64 mode?

3 Is there a cartridge for 128 mode only?

4 Are there any suppliers of C128 software as I only have C64 software?

5 Can you explain the difference between the C64, C64C and C128 sound chips because I get no sound on C64 games in 64 mode?

6 Which is the better option: expanding the internal RAM from 128K to 512K and then getting the goodies shown in CF47, or just getting the goodies instead?

Glen Freemantle, Abingdon

1 Not unless you tell me exactly what you mean. If the characters on the screen are all okay but you get lines appearing in the background, maybe every character space or so, this is likely to be your monitor wearing out. If the actual characters are broken up, it could be that your VIC chip has been damaged. Both happened to me. If it's something else you'll need to describe it better.

2 The AR cartridge only works in 64 mode; it switches the C128 to 64 mode all by itself, and I'm afraid there is absolutely nothing you can do to prevent it from happening.

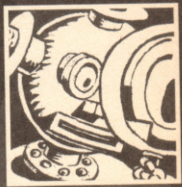
3 There was one developed a long time ago but it never really did much and isn't available any more.

4 Very little C128 software was ever produced and therefore there is very little to supply.

5 If you have no software, how can you be sure you are getting sound in 128 mode? Have you tried using some simple test programs in 128 mode and in 64 mode? The sound chip might have died, but if you get sound in 128 mode and not in 64 mode then this is all seriously weird. The C64 and C128 sound chips are practically the same; the C64C one appears to vary due to different capacitors linked up to it. Sound samples tend to come out very low, but everything else should be fine. I assume you've checked simple things like whether your monitor's speaker is dead.

6 If you can afford to expand the RAM as well as buying the goodies then do so. However, I would suggest that you just buy the goodies,then consider expanding the internal RAM later if you need to.

COPY CAT



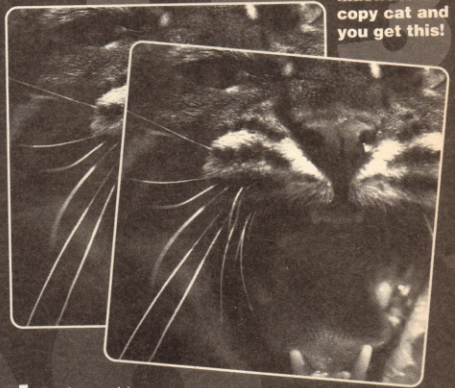
Dear Techie Tips,

1 I have a utility which turbo loads machine code programs. Do I need to get the programmer's permission to use it in a game to sell?

2 If I make my own game could I get into trouble if I copy it and sell it myself?

3 The files on CF37's Power Pack to explain interrupt loading were missing. Can you suggest any books that explain this?

Dean Fennell, Dublin



Ask an artist to illustrate a copy cat and you get this!

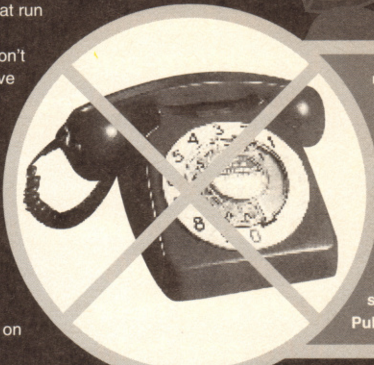
1 So far as I know, you wouldn't. And unless he's a completely unreasonable chappy, he won't be after royalties from software that is produced using his turbo load. But it would be courteous of you, somewhere in the game or packaging, to credit him for the turbo load routine.

2 Not at all. If you make a game, its copyright belongs to you. It's only other people that will get into trouble if they are making illegal copies of it.

3 They were never meant to be there. Interrupt loading is an exceedingly complex task which requires a lot of trial and error to get right. You should be able to save off the machine code from the Loader Maker program and then examine it to find out exactly how it works. This requires a very good knowledge of machine code.

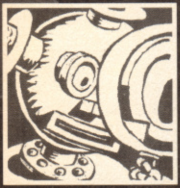
64 software. There are also a few C64 programs that run properly on the 128 while it's operating in its native mode. These are mainly BASIC programs, which don't contain any machine code and don't do an excessive amount of POKEing around in the memory. Other programs can't do this because of the two machine's different memory maps.

Conversely, the majority of programs for the C128 won't work on the C64 because the BASIC used in the C128 includes a number of added keywords not found in the C64's BASIC. Most 128 programmers utilise these extra commands, which the C64 simply doesn't understand. On the whole, it's best to keep C128 programs on the C128 – not that I'm saying it's impossible to use 128 programs on the 64, you understand. **Jason**



TECHIE QUERIES – DON'T CALL US!

If you have any technical queries about your CPC, the only person on the magazine who can help you is Jason Finch, and he can only be contacted by post as he doesn't work in the *CF* office. If you phone up the office there is no-one here that can help you – as much as we'd like to, we simply aren't brainy enough – and it prevents our already stretched team from getting on with the job of producing the magazine. In fact, if you phone the office, all you'll get is an answering machine that tells you the same as it says here, so there's no point wasting your phone bill. Please send all techie queries BY POST to: Techie Tips, Commodore Format, Future Publishing, 30 Monmouth Street, Bath, Avon BA1 2BW.



Slimline characters

Dear Techie Tips,

1 **I've had my Commodore MPS803 dot matrix for over a year now, but I still haven't found a way to output high-quality letters. Also, I would like to know if there is a way I can make the printer go over characters twice to produce a bold effect. If it is possible, could you give me a BASIC listing to do it, please?**

2 **Could you also tell me if there's any way of producing condensed characters on the C64's display. I've had an idea that involves reducing the number of bits in a character grid from eight to four, thus halving the size of the characters on the screen to produce a sort of 80 column display. This seems to work in theory, but would it work in practice?**

Nicholas Lines, Southampton

MPS 803

1 The only way to produce such letters on your printer would be to use the graphic mode to define your own letters. Of course, you'd need quite a complex machine code routine to decide which character you wanted to print and then to output the necessary bits to the printer, rather than just reprinting the characters again. However, although the characters would be different, the dots that make them up would neither be any denser nor darker. If you need better quality prints for professional reasons, then you'll be better off investing in a new printer that incorporates such styles – the effort required to produce your own wouldn't be justified by the result.

2 There are a couple of programs on the Public Domain market that give this very effect. They don't actually reduce the physical size of the characters, however, instead they use the C64's bitmapped graphics mode. A routine is set up that intercepts the computer's routines every time a key is pressed. The relevant dots are then plotted to the bitmap screen to give the illusion of 80 columns of characters. **Jason**

QUICK SHOTS

- ***Is it worth keeping my C128 and C64 or should I upgrade to an Amiga?***
Dean Lennell, Co Dublin

Erm, I think you mean downgrading there, don't you? Why change computer when the one you've got is already doing everything you need? Try getting into programming and have a go at writing your own games. This will give you hours of creative fun, rather than numbing your brain with an array of Amiga games that generally score a big fat zero where gameplay is concerned. Allegedly. Jason

- ***In Commodore Format 49 Paul Gander asked about using a 1084S monitor in RGB mode to get the 80 column display with his 128D. I've made a lead up which is a 9 pin D type to an 8 pin DIN and it works a treat. I would be glad to supply a lead for this guy in return for a copy of the 128D user manual.***
J Anderson, Aylesbury

If anyone would like such a lead and can supply the 128D user manual, let me know and I'll pass your address on. You never know, even if J has the manual by the time you write (or if you haven't got one to offer) he or she may make one for you in return for a cash donation instead. Jason

- ***Many thanks for the excellent machine code series; it has helped me enormously in my learning and mastering of the machine code language. Could you possibly tell me what the start and finish addresses are for the 6510+ Assembler please?***
Andrew McCombe, Cannock

I'm glad you found the Machine Code series helpful, and I hope you find the follow-up articles just as useful. Next month we'll be chucking hefty wadge of information about Interpreter and Kernal ROM routines your way in order to help you get the most out of machine code programming.

As far as the 6510+ Assembler is concerned, it is located from $7200 to $9FFF inclusive. Jason

- ***What is the POKE code for the screen ink?***
Chris Neville, Maidenhead

To change the cursor colour – or screen ink if you prefer – you store a number between 0 and 15 at location 646. In other words, do POKE 646,1 (for white) or similar. The numbers correspond to the standard C64 colour codes: from 0 to 15 these correspond to black, white, red, cyan, purple, green, blue, yellow, orange, brown, pink, dark grey, medium grey, light green, light blue and light grey. How's that for a memory? Jason

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